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TEACHING AND TESTING SCIENCE SUBJECT IN THE ENGLISH LANGUAGE: A CASE STUDY OF PMR STUDENTS

KRISHNASAMY A/L P.S.RAMASAMY

UNIVERSITI PENDIDIKAN SULTAN IDRIS

2008

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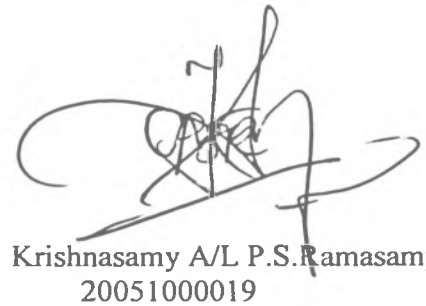
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PENGAKUAN

Saya mengaku disertasi ini adalah hasil kerja saya sendiri kecuali nukilan dan ringkasan yang setiap satunya saya jelaskan sumbernya.



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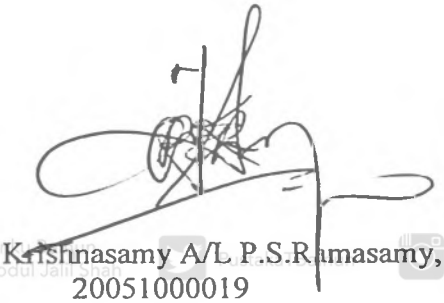
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DECLARATION

I hereby declare that the words in this dissertation is my own except for quotations and summaries which have been duly acknowledged.



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ABSTRAK

Kajian ini bertujuan untuk mengenal pasti pelbagai kemahiran bahasa yang digunakan oleh pelajar tingkatan tiga di kawasan separa Bandar dalam aspek-aspek seperti 'scan', 'skim', mencari informasi, meramal, inferens dan sebagainya sepertimana terkandung dalam sukatan kurikulum tingkatan tiga. Kajian ini dapat membantu golongan pendidik khasnya guru untuk merancang program khas dan strategi mengajar untuk membantu pelajar mengatasi kelemahn dalam meningkatkan proses pengajaran dan pembelajaran mata pelajaran Sains disamping mengukuhkan keberkesanan pengunaan Bahasa Inggeris dalam mata pelajaran tersebut.

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ABSTRACT

This is a study to determine the different language skills employed by Form Three semi-urban school students in terms of scanning, skimming, locating information, predicting , understanding, sequencing, inferencing, and all the other related reading skills as listed in the form Three Curriculum Specifications. The findings will provide an insight on the effectiveness of using either Bahasa Malaysia or English Language by the Form Three students in learning and using their skills in answering the Science examination paper in their PMR examination. This insight study will also enable educationists and teachers to tailor special programmes and teaching strategies to help remedy students' weaknesses in improving the teaching and learning process of the Science subject and also to reaffirm the effectiveness of teaching the subject in English Language.

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CHAPTER I

BACKGROUND OF THE STUDY

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1.1 Introduction

Recently, the Malaysian Ministry of Education of Malaysia has emphasized the use of English Language in the education system of Malaysia. As the first step the ministry has implemented the English Language in the teaching of Science and Mathematics in English. This change is done systematically, whereby the medium of instruction for both these subjects was introduced in year one and form one since 2003. The first batch of form three students who were taught in English sat for their Science and Mathematic paper in English 2005 and the first batch of form five students will sit for their Science and Mathematic subjects in English 2007.

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The standard of English has declined as English has been relegated from the main medium of instruction to a school subject. Firstly, the wide usage of the language was limited to one subject .As a result the students have limited exposure to the language. Secondly, the importance given to the national language that is Bahasa Malaysia in the country especially the government sector has shifted the concentration of the Malaysian population towards mastering the Malay Language rather than the English Language. This was more prominent in the educational and employment sector, whereby students who pass out from schools and tertiary institution must possess a credit before they are employed in government sector.(Ministry of Education,2002). Furthermore, the sentiment for the National Language and mother tongue grew stronger among the different ethnic groups. The politicians also played a great role in influencing the public in sidelining the importance of the English Language.

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This situation does not apply or occur always because many elite families or educated families mostly of Chinese and Indian origin use English as their first language.(Asmah Haji Omar,1991). In many cases the second generation are unable to speak their mother tongue as such English is accepted as their mother tongue since their parents speak to them in this language. Among the Indian society, most of these groups were from India and Sri Lanka. They were brought in by the British under the divide and rule policy. These groups used English as the medium of interaction with their children who later forgot their mother tongue. The Chinese community who were here earlier and got their earlier education in English schools also started using more of English Language than their mother tongue at home. This lack of exposure

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weakened the mastery of their mother tongue, but improved their English proficiency. Hence, English Language has become a survival language and it is also used to uplift their social status in society.(Asmah Haji Omar,1991).

Furthermore, the Chinese and Tamil subjects are more ambiguous and uncertain about their cultural identity compared to the Malay subjects who have a close inclination to the identity, traditions and culture. This is because, the Malay society will never forgo their language as said by Norrizan Razali (ESL in Malaysia: Looking beyond the classroom). If he is a Malay, his language would be Malay, religion Islam and he would have a rich culture he would never separate himself from the other two main races. These groups give more importance to the second language that is English Language although most of them still follow the traditions and customs of their forefathers. Another important factor is the religion they follow. Some of them are Hindus, Christians, Buddists and Muslims. So, the religious bondage towards the language is less compared to the Malays. When he is a Christian, he will have more exposure, in English Language hence this would indirectly enable him to master the language. This uncertain cultural, religious and racial identity influences the Chinese and the Indians to master the English Language better than the Malays. This situation can be seen in school such as my school where students consist of all the three main races proportionately. Therefore I agree that this situation exists and has a strong influence in mastering a particular language.

In addition, cultural identity is directly linked to an individual's native tongue. Through observation I notice that when we see an Indian we expect him to know Tamil and if he fails to speak the language as another Indian will look down upon

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him. The same goes to a Chinese and the Malays. A lot of rich culture is linked closely to the culture of that particular race. The rich heritage of the ethnic group and knowing the native language is very important and it increases an individual's cultural bondage and also the integrity of that person which is associated to that ethnic group. The identification of the roots of that group is through the native language. When there is a conversation within a mixed group in a language comprehendible by the different ethnic group there would be a maturity of thought whereby, interaction would go over boundaries to understand others well in terms of culture, religion and traditions besides being able to have a holistic conversation and not confined to certain issues concerning only a specific ethnic group.

Furthermore, the ethnic identity is important in bringing up children as it would be easy to explain the cultural and religious values in the native language. At the same time there is a risk if different ethnic group clinging on to their own native language strongly as this would affect the social integration of the different races in this country.

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1.2 STATEMENT OF THE PROBLEM

The Malaysian Ministry of Education is spending millions of dollars to ensure the smooth implementation of the change in teaching both these subjects in English. In order to see that the change is progressing well it is monitoring students' academic progress through various examinations such as the Primary Assessment Examination (UPSR), Lower Secondary Examination (PMR), Malaysia Certificate of Education

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Examination (SPM) and Higher Certificate of Education Examination (STPM) before they are allowed to further their education at the tertiary level. This is to ensure that the students acquire the necessary skills stipulated in the curriculum as specified in the KBSR and KBSM syllabuses.

However, the performance of the students could not be gauged properly as the question papers were set in dual languages and students are allowed to attempt either in Bahasa Melaysia or in English Language. About 70% of the Form Three students attempted the PMR examination in Bahasa Melaysia in the first year. Hence, the effectiveness of the performance and the authentic result of students cannot be assessed effectively. As such the effectiveness of teaching the subjects in English could not be assessed accurately. So, this study will enable to expose the extent of the language skills used by students in mastering and attempting the examination questions. In addition, the result of the study would also enable us to do a study of the students' knowledge in acquiring the skills needed in attempting the exam questions and also to find out whether the ministry's objective is being achieved.

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1.3 RESEARCH QUESTIONS:

i). Do students perform better in their PMR examinations if the English Language is used as the medium of instruction in teaching the science subject?

ii). To what extent has the students understood the questions in English Language in comparison to the subject taught in Bahasa Malaysia?

iii). Do students feel comfortable in studying and attempting the science subject in the PMR examinations in English Language?

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1.4 SIGNIFICANCE OF THE STUDY

This study will be able to provide data which will give insights on the preferred language and the skills employed by Form Three students in attempting the tests and the problem they face due to the language. This study would also help teachers who are teaching science in the English Language to modify their teaching strategies and innovate new strategies in teaching the language more effectively. In addition, this study may perhaps be able to determine the plausibility of the curriculum design in relation to (vis-à-vis) the cognitive and psychological maturity of the students at the Form Three level in mastering the necessary skill in the English Language in attempting the Science tests more effectively and produce better results. Suggestions will also be given how to improve the existing situation.

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CHAPTER 2

REVIEW OF THE RELATED LITERATURE

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2.1 Introduction

The teaching of Mathematics and Science was implemented in all schools in Malaysia in the year 2003 (Ministry of Education,2002). The implementation of this policy is based on the acceptance that Mathematics and Science are knowledge of a dynamic nature and many discoveries in these fields are written in English. Thus, English is seen as an asset that will provide the coming generations the edge to compete in the era of globalization.

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2.2 THE IMPLEMENTATION OF TEACHING MATHEMATICS AND SCIENCE IN ENGLISH.

The implementation of teaching Mathematics and Science in the English language was done in stages involving many subjects in the Malaysian schools. The subjects that were introduced in English are as follows:

1. National Schools and Vernacular Schools
a. Science Year 1 b. Mathematics Year 1
2. Lower Secondary Schools.
a. Science in Form 1. b. Mathematics in Form 1.
3. Pre-University (Form Six).
a. Physics b. Biology c. Chemistry d. Mathematic S e. Mathematic T f. Advance Mathematics g. Computer Studies h. Allocation of time.

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The National type and Tamil Vernacular Schools were allocated the following time for teaching in a week.

Subjects	Minutes per week
Science	90
Mathematics	120

Legend: *Source: Ministry of Education

Table 1: The National type and Tamil Vernacular Schools

While in the Chinese Vernacular Schools the allocated time as follows;

Subjects	Minutes	in a	week
	In Mandarin	In English	Total
Science	90	90	180
Mathematics	180	180	360

Legend: *Source: Ministry of Education

Table 2: Chinese Vernacular Schools

The comparison between the two tables will show that there is a difference between the teaching times allocated for between these two vernacular schools in the National Primary and Tamil Vernacular schools, the teaching of Mathematics and Science is done using English. On the contrary, in the Chinese vernacular schools, the teaching is done using Manderin and English. (Refer Table 2).

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The teaching of Mathematics and Science in English in the Chinese Vernacular schools was based on the 2-4-3 formula- that is, two periods for English, four for Mathematics and three for Science per week for the lower primary. When the first batch of English for the Teaching of Mathematics and Science pupils entered Year 4 in 2006 , a new 4-2-2 formula was implemented at the upper primary in Chinese schools are the only schools which have adopted a bilingual approach in the teaching of the two subjects.

The implementation of this programme was done in stages from the year 2003 to the year 2008. In the year 2003, the teaching of Mathematics and Science in English was carried out in Year 1 and Form 1 in all schools in Malaysia. It should be noted that Mathematics and Science subjects were implemented in different nature.

The Science subject was implemented gradually and in stages to the learners. In the National and Tamil Vernacular primary schools, the introduction was done in three stages; the full implementation according to schools own capabilities and teaching of Mathematics and Science using their own medium of instructions, namely Bahasa Melayu and Tamil Language. (Ministry of Education,2003)*(Refer Table 3).*

On the other hand, teaching of Science in English was implemented in only two stages; the full implementation in English and using their own medium of instructions in National and Vernacular schools. *(Refer Table 4)*

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	2003	2004	2005	2006	2007	2008
Year 1	√	√	√	√	√	√
Year 2	-	√	√	√	√	√
Year 3	-	-	√	√	√	√
Year 4	*	*	*	√	√	√
Year 5	*	*	*	*	√	√
Year 6	*	*	*	*	*	√

Legend: *Source: Ministry of Education

Table 3: The Teaching of Mathematics in English: National and Vernacular schools.

*Teaching is done with making use of schools' own capabilities

-Teaching is not done

√Teaching is done in English

	2003	2004	2005	2006	2007	2008
Year 1	√	√	√	√	√	√
Year 2	*	√	√	√	√	√
Year 3	*	*	√	√	√	√
Year 4	*	*	*	√	√	√
Year 5	*	*	*	*	√	√
Year 6	*	*	*	*	*	√

Legend : *Source: Ministry of Education

Table 4: The Teaching of Science in English: National and Vernacular schools.

*Teaching is done by making use of schools' own capabilities

√ Teaching is done in English

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	2003	2004	2005	2006	2007	2008
Form 1	√	√	√	√	√	√
Form 2	*	√	√	√	√	√
Form 3	*	*	√	√	√	√
Form 4	*	*	*	√	√	√
Form5	*	*	*	*	√	√
Lower 6	√	√	√	√	√	√
Upper 6	*	√	√	√	√	√

Legend: *Source: Ministry of Education

Table 5: The Teaching of Science in Secondary and Form Six

*Teaching is done by making use of schools' own capabilities

√ Teaching is done in English

With the introduction of the teaching of Mathematics and Science in English many choruses of voices were heard over the media in Malaysia. Generally, there were two schools of thoughts. One voice was the teaching of the two subjects in English and the other was against the teaching of these subjects in English.

The first school of thought supports the use of English and perceive its importance in a modern society. The importance of English can be seen through the 1960 Education Review Committee. It is stated that

'English holds dominating position in international councils and commerce, in the textbooks and literature of the world. A command of it is one of our national assets' (cited in Platt and Weber, 1980:162)

It cannot be argued that with a command of the language, Malaysians can function more effectively in the regional context like ASEAN where English is accepted

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as a lingua franca (Krasnick 1995; Okudaira 1999 in Mukudan et.al, 2004 : 15). In the international arena , all over the world English is used as a first language by over 300 million people and as a second language by over 1000 million (Hughes, 2000:317) and depend on, the English language (Crystal, 2003:71). With a good command of this language it will indeed be a tool of utmost importance to function effectively and efficiently in the era of globalization, diversification and economic progress (Low & Brown,2005:2).

A language achieves a genuinely global status when it develops a special role that is recognized in every country (Crystal, 2003: 3). According to Peter Strevens in Ronowicz (1999 : 13) English as a global language developed in a series of stages from the first stage between 1350 to the present and the second stage during the 1945 to the present stage.

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" *nearly all the remaining colonies of Britain became independent states, and at once the role of and function of English changed from being an instrument of subservience to other, quite different ends, such as a 'window on the world of science and technology."*

Sarwar (in Low & Brown 2005:1) proposes that three features stand out as key elements in the age of globalization in the new millennium and one of it is the use of English as an international language for communication and education. Therefore the English language which is accepted as the international language is used as the medium of instruction in all the important and crucial studies and research such as computer studies and technological studies in the world today.

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The ultimate aim of the introduction of teaching of Mathematics and Science in English is to enable students to access information from an array of media to acquire knowledge. Armed with knowledge the coming generations of Malaysians will be able to compete in the international arena (Ministry of Education, 2002).

In relation to the above, most innovations of the Industrial Revolution were of British origin and the linguistic consequences of these achievements were far reaching. The new terminology of technological and scientific advance had an immediate impact on the language, addition of tens of thousands of words to the English lexicon.

" *But more important, the fact that these innovations were pouring out of an English-speaking country; meant that those from abroad who wished to learn them would need to learn English-and learn it well- if they wished to benefit "(Crystal, 2003 : 80)*

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It was not long before similar developments were taking place in America which, at the end of the century, had overtaken Britain as the world's fastest growing economy. Hence,

"making English the medium of the great deal of world's knowledge, especially in the area of science and technology." (ipid : 110).

Batibo in Putz (1997 : 196) describes the scenario in Botswana and Tanzania in the post-independence era. He argues that English was an incontestable international medium and the vehicle of modern science and technology. He continues that although English was considered as remnants of colonialism, but it was regarded as an indispensable

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medium in most of the official dealings at national and international levels which is in support to the above mentioned idea. Jones in Putz (1997 : 242) supports that it is most likely that most "print knowledge" will be in English – thus pointing to the importance of literacy skills in English and Phillipson (1992 : 149) confers that half of all new scientific publication throughout the world is in English thus justifying the importance of English and a command of it will help Malaysians to acquire knowledge. So. As an English teacher, I feel that the knowledge of English is vital to an individual for his future undertakings in the field of science and technology.

A proponent of the teaching of Mathematics and Science in English Professor Datuk Dr. Shamsul Amri Baharuddin, Director of the Institute of the Malay World and Civilization states that English is the universally accepted medium in the fields of Science and Mathematics (New Strait Times, 3rd April, 2005).The same view is shared by the educationists, parents and teachers in general.(The Star, 9th October,2008,New Straits Times, 14th September,2008). On another note, to show the importance of English in the Malaysian education system, then the Ministry of Education directed the Curriculum Development Centre to develop a special programme in the field of Science and Technology using English as the medium of instruction for students in Form Four on 28th October 2000 (Rohani Abdul Hamid and Netty Yusof in Mukundan et al 2000 : 170). The rational for this introduction is to prepare students for a career in science and technology. First, in the Malaysian private sectors, job candidates had a poor grasp of general English and had difficulties in communicating and presenting ideas in English

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and locally trained graduates were unable to negotiate and discuss matters in English in their dealings with foreign clients and consultants.

The second rationale is seen from the students in the tertiary institution who have a poor command of general English, to the extent of having problems in following the mandatory course- English for Specific Purposes (ESP) in universities and polytechnics. Furthermore, students' lack of general knowledge affects their confidence to speak and discuss matters on various topics.

To the thesis of the increased dominance of English needs to be added the antithesis of opposition to the language. Many oppose to the introduction of English as a medium of instructions. Philipson (1992) writes that those protesting,

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"include colonized people, European parliamentarians, political enemies of core-English nations, guardians of the purity of languages that English intrudes on, and the intellectuals from core and periphery-English countries."

In Malaysia, leading the opposition to this policy change are the guardians of the National (Bahasa Melayu) and Chinese languages. In the Second Malays Education Congress the use of English to teach Mathematics and Science was seen as a threat to the National Language, Bahasa Melayu (New Staits Times, 3rd April 2005). In the congress Mr. Kamal Sukri Abdullah Sani argues that;

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" the potential of Bahasa Melayu as a medium of communication in Mathematics and Science is denied and seemingly unrecognized and because of this the language Bahasa Melayu will never develop."

The United Chinese School Committee's Association of Malaysia or Dong Jioa Zhong, strongly objects to the teaching of Mathematics and Science in English and has reiterated that;

' the authorities should take immediate actions to allow schools to switch back to their mother tongues as the medium of instruction for the two subjects."

This group's chairman Dr Yap Sin Tian believes the right way to improve pupils' English is to emphasize the language subjects and not via the technical subjects,

"We want to stress that we do not oppose the idea of improving the command of English language. However, we believe that leaning of Mathametics and Science in English is not the right way to achieve the objective." (The Star Dec. 10th 2006)

Another reason why the implementation of the teaching of Mathematics and Science is opposed is because of the disparity of learning between the rural and urban learners in the Malaysian Schools. Benson in Phillipson (1992:24) states that:

"*For many rural Malaysians, English remains an entirely foreign language. By contrast, it is very much an everyday language of the large cities."*

Generally there is a fear among Malaysians that students in the urban areas will fare better than their counterparts in the rural areas hence creating a division among future Malaysians. Such fears too exist among the urbanites. Parents and educators fear

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that students from an English speaking background will fare better than students from the non-speaking families. A teacher in Ipoh (Star, 10th December 2006) argues that;

"*pupils from the Chinese-speaking background are facing difficulties compared with those who speak English at home.* And she continues, "*those less proficient in English are now expected to learn and understand the scientific and Mathematical terms in a language they are not good at.*"

The call to teach Mathematics and Science in an individuals own mother tongue is grounded in the philosophy that a child understands the concepts better. A better understanding brings clarity and knowledge. Gandhi too believes that a child must be educated in his/her mother tongue for it can draw the best out in a child (Agnihotri & Khana, 1997:28)

In a study comparing Canadian and Chinese students on how the brain solves Mathematical problems, brain scans reveal that Chinese speakers rely more on visual regions than English speakers when comparing numbers and doing sums. Hence, having a better understanding and the capability to solve Mathematical problems easily (Reiman, 2001) The above sentiment is also shared by a secondary school teacher who claims that;

"*since Mathematics involves only numbers and figures we can teach the subject in our mother tongue. The learners will have a better understanding of the concept(s). When teach in English I have to teach in English and then translate it to Bahasa Maelayu. I find it difficultand learners tend to get bored.*" *(Personal communication, 01.03.2007).*

Aggarwal in Agnithori & Khanna (1997:28) gives a deeper review on the above issue. He reiterates that;

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"the proper teaching of the mother tongue is the foundation of all education without the capacity to speak effectively and to write correctly and lucidly, no one can develop precision of thought or clarity of ideas."

Furthermore, Philipson (1992:68 – 69) details how education serves the country. These are economic- reproductive (a process of qualification for work in the economy), ideological (the inculcation of attitudes and values), and repressive (the imposition of sanctions for not complying with the demands of schools). In these three processes English has an important role to play. First, part of the widespread legitimating for English is to qualify people to build up the nation, to operate the technology that English provides access to, and which the State has decided to embrace. It therefore has an economic – reproductive function.

Secondly, English is also supposed to bring 'modern' ideas with it, to be the channel for interpersonal, social and cultural values. It therefore has an ideological function. English was supposed to represent a gateway to better communication, better education and so to achieve a higher standard of living.

Thirdly, English has a repressive function, in that there is no choice other than to use the language in English classes. This has substantial implications if English is used as a medium of instruction for other subjects. This is applicable to the teaching of Mathematics and Science in English. However, there is a mixed feeling among the teachers. Some feel that the need of teaching these subjects in English will definitely promise a better future for the students as they can excel into any field they like with the knowledge they acquire from these subjects(English Language, Mathematics and

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Science). However, there are a small group of teachers feel that the usage of using English may hamper the students from acquiring their skills in their mother tongue namely the Bahasa Malaysia, Tamil Language and the Chinese Language.

CONCLUSION

From the discussion above it can be construed that English as a language is accepted by some quarters while some oppose it. English has come a long way since it made its way into Malaysia (then Malaya). As a language of the colonial master it was despised but also embraced by some. It is a means or 'tool' for a better life; a way to a brighter future for an individual. At present, in the era of globalization, English is still relevant and will be for years to come. In order to execute the programme of teaching Mathematics and Science in English successfully, the main workforce are the teachers. Teachers should be educated and trained inline with the governments policy so that the teachers possess the needed skills in that particular language before ensuring the smooth delivery of knowledge in both these subjects. Hence, teacher education and training include every form of course designed to prepare and enhance the professional skills and understandings of teachers. It is the means by which men and women prepare for and enter their profession as teachers. Teacher education and training is also perhaps the most important aspect of education policy because teachers translate educational goals into reality. As the editors of the 1963 Year Book of Education put it:

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"The strength of an education system must largely depend upon the quality of its teachers. However enlightened the aims, however up-to-date and generous the equipment, however efficient the administration, the value to the children is determined by the teachers. There is therefore no more important matter than that of securing a sufficient supply of the right kind of people to the profession, providing them with the best possible training, and ensuring them a status and esteem commensurate with the importance and responsibility of their work. With the rapid expansion of schooling, both in numbers and extent all over the world, these problems have acquired a new importance and urgency."(Lauwerys 1969 p.26).

So, teacher education and training courses that are the pre-service programmes consist of two types of programmes. They are the Malaysian Diploma in Teaching and the Postgraduate Diploma in Education and they are structured as to produce the quality of teachers who, in final analysis, have the responsibility of implementing the curriculum for schools at the grass root level. We must understand that the initial training course cannot give the pre-service teacher everything he/she will need as the years unfold, nor can it be expected to. As Rousseau said;

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".....we have to turn the student teachers into competent teachers as a one-year course can produce. At the same time, skilful teaching cannot be our final aim. We need men and women able to see not only their teaching in its actual setting, but also beyond the actual to the ideal, both inside and outside the classroom....."(p.26)

Lawson(1990) shares the same view, that teacher education should be seen as a continuous process. He sees initial teacher training as the first stage of initiation into the profession of teaching. The teacher should continue,

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"..... not only to update their 'subject expertise' and rethink their methods, but to develop as human beings and professionals in a variety of ways." (P151)
In the context of Malaysia, all professional teachers need to attend a teacher education and training course and pass all of the components that formed the course in order to be "certifiably competent"-professional trained teachers."

Both the universities and the Teacher Education Division of the Education Ministry undertake the task of teacher education and training. The direction and character of teacher education and training course has been influenced and geared by the Philosophy of Teacher Education which is also in line with the National Philosophy of Education "The teacher, who is noble in character, progressive and scientific in outlook, committed to upholding the aspirations of the nation, and cherishes the national cultural heritage, ensures the development of the individual and the preservation of a united, democratic, progressive and disciplined society. The goals designated to achieve are National Unity, National Culture, Scientific & Technological aspects and Individual Development. The strategies used to achieve these goals are Curriculum (Foundation Courses, Professional Courses, Teaching Practice, Self-Enrichment) and Co-curriculum (Sporting activities, Cultural activities, Organizations and Community service). (Ministry of Education, Malaysia 1882,p.14).

English Language has taken a leap in terms of importance globally in recent years. This drastic global change has also affected the educational system practiced in Malaysia, whereby, special importance has been focused on mastering the English Language in a short period of time. As a result, much enthusiasm has been poured over the various aspects of teaching ESL. The Ministry of Education has also been given the task to train

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teachers who are able to teach the English Language. Since the change of medium of instruction from English to Bahasa Malaysia, in the seventies, there was a constant deterioration of the English language among the learners of this language in this country. However, with the change of policy in giving more importance to this language making it the medium in teaching Mathematics and Science subjects in English Language resulted in the demand of teachers to teach this subject in a short period of time. Hence, many colleges, institutes and universities took the task to train quality teachers to overcome the shortage of teachers to teach the subjects. This drastic change and training of teachers has placed the education department to encounter some important issues, challenges in handling the quick training programme of the English Teachers. The Pre-Service English Language Teacher Education faces a few issues that should be administered properly so that the objective of the programme can be carried out successfully.

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2.3 The Issues, Challenges and Prospects.

The issues are as follow;

2.3.1 Low English Proficiency of Pre-Service English Language Teachers.

In Malaysia there has been a steady decline in the standard of English among its students. The public at large has voiced dissatisfaction over the poor performance of the Malaysian students via the media and educational forums. Studies have revealed that attitudinal and motivational variables relate to individuals' language achievement. It has been found that a second language learner gains better proficiency when he/she is

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positively disposed towards the language. (Garner & Lambert, 1976). A study carried out by Dr.Ambigapathy Pandian & Sachithanantham Tachina Moorthi from the School of Humanities in University Sains Malaysia, Penang shows that Lecturer-trainee relationship, peer group relationship and the trainees' perception of the programme are found to be major factors in influencing the trainees' attitudes towards the learning of English in teacher-training colleges in Malaysia. This prompts the conclusion that there is a need to redefine the implementation of the English Studies programme in teacher-training colleges. Creating a supportive and conducive educational context seem imperative for the success of future English studies programme. Thus, the current English studies programme should be scrutinized for changes and adaptations, which are essential for progress.

2.3.2 The Exisiting shortage of Proficient English Language Teachers.

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There is still a shortage of trained secondary school teachers particularly in rural and remote areas. The shortage is in critical subjects such as Science, Mathematics, and English. In 2000 the shortage of graduate and non-graduate teachers in regular secondary schools in 1395 for Science, 342 for Mathematics, and 1796 for English.

In order to meet the demand for secondary school teachers, public universities train graduate teachers in educational courses like Arts with Education and Science with Education. In 2000, teacher training for such programmes produce 1906 teachers. The University College Tun Hussein Onn has trained teachers in technical fields to meet the demand for technical schools, polytechnics, and community colleges. In 2000, this

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college has trained 193 graduate teachers and the number has risen to meet the demand of the education department. In the year 2002 6,700 places were allocated to train teachers in Teacher Training Colleges where by they would be offered Diploma in Education at the end of the course. More places were reserved to train teachers in the critical courses in the field of English, Science and Mathematics in order to meet the shortage of teachers in the respective fields. Besides, 2,700 graduates were taken in by Local universities to be trained them as teachers by offering courses in Diploma in Education in the same year. With the increase in the number of teachers the problem of shortage of teachers has been narrowed tremendously.

2.3.3 The Frequent Change in Educational Policy.

The frequent change in the educational policy which brings about the change in the curriculum is another issue that has an impact on the training of the teachers. The implementation of the teaching of Science and Mathematics in English was introduced in 2003. It was introduced from year 1 in the primary schools and in Form 1 , Form 4 and Form 6 in secondary schools. The students were allowed to answer the examination questions in either Bahasa Melayu or English Language until the Form 1 students who are in Form one in the year 2003 take the exam in 2005 at PMR level , SPM in 2007 and STPM in 2009. Until than the public exam question papers will be set in both languages (Dewi Bahasa). As a result of this sudden change of medium of instruction there was a demand for English teachers to teach both these subjects. As such the intake of students into colleges and universities were increased. Therefore, some candidates with average or

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poor proficiency were taken in to meet the demand. Furthermore, there were students who scored good grades in English Language but could not perform well orally. These pre-service teachers encountered numerous problems during the training programme. This problem was highlighted in the local media especially the local newspapers. "English proficiency still low at local varsities" (NST, January 2007). The Higher Education Ministry is carrying out a study to find out the level of English proficiency among lecturers and students of local universities. According to Datuk Mustapa Mohamed, The Minister of Higher Education revealed the preliminary finding. The initial study shows that the level of proficiency of about 29 percent of the 132,000 university students was either at "Level One or Level Two" –the lowest in the Malaysian University English Test (MUET). About 43 percent is at Level Three (average), 21 percent at Level Four (Satisfactory), five percent at Level Five(good) and the remaining two percent is at level six, which is excellent. (NST, January,2007). This figure includes the pre-service teachers too as teachers are trained mostly in universities besides colleges and institutions. Now the uphill task relies on these institution of tertiary education to churn out good quality teachers to meet the demand of the teaching sector. The expectation of the pupils, students, parents and the ministry is very high. Hence, the teaching force in the institutions need to design relevant programmes to meet the demand. According to Datuk Mustapa, he has mentioned that the management of several universities had already taken the initiative to conduct extra English Language classes for students. University Technology Malaysia's vice-chancellor Datuk Professor Dr.Mohd Zulkifli Mohd Ghazali has also mentioned the contigency plan taken by his university whereby short- and long- term programme has been lined up. In addition he has also

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initiated the formation of an English Unit, headed by a director. The vice chancellor also said that English was being used in all the courses conducted at UTM.(NST, January 2007). Similar steps are also taken at all levels in order to prepare the pre-service teachers to take up future challenges when they are posted to schools and college. We should be aware that any change in policy or programme can bring about a domino effect to many areas in the related field. It will take a while to stabilize the changes and to see the effectiveness of the whole programme. What the ministry and tertiary institutions are doing is in line with the success of the programme in producing teachers who would be capable of handling the future challenges in the teaching profession.

2.3.4 Lack of English Proficiency among Lecturers.

The lack of English Proficiency among lecturers is another serious issue now. These lectures are given the task to train the students to be good skillful teachers and if they are poor in English Proficiency than they would not be able to deliver the maximum knowledge to the pre-service teachers. This is going to hamper the transfer of free flow of knowledge, hence, the product churned out would be defective. There teachers would lack professionalism when they are posted to schools. This issue was addressed by the Vice-chancellor of Universiti Teknologi Mara(UiTM) Datuk Seri Prof. Dr Ibrahim Abu Shah. Most of the tertiary institutions are carrying out special programmes such as English courses, workshops and activities in order to encounter this problem. The Vice-Chancellor of UiTM has also stated that compulsory courses such as Public Speaking

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and English Courses are being carried out in order to improve the English proficiency of the students and lecturers. (NST, January 2007).

2.3.5 Lack of Professional Knowledge and General Knowledge.

Nowadays, the reading culture is slowly dying due to the electronic media and gadgets which not only flooded the market, but also conquered the interest of the general public. Electronic equipment such as computers, hand phones, pocket diaries and television has contributed toward students' lack of reading of printed materials. This situation has resulted in students using short message system(SMS), and colloquial English in communicating with others. As a result this language would be fossilized in them. There is a high tendency of these pre-service teachers to use them in formal situations. Furthermore, the lack of reading habit would hamper them as they would not have enough general knowledge professionally. This would be another setback for the pre-service teachers once they complete their training and sent to schools. Hence, their performance would also be affected. This prevails among the current teachers when they are given the task to teach subjects like English for Science and Technology(EST), Science and Mathematics in schools. Once a teacher is good in English, he or she is pulled in to teach the Science and Mathematics in English Language and those teachers who lack in knowledge in the respective field is already facing problem in delivering the knowledge to the students. This situation is going to affect the professionalism of the future teachers. So, in order to overcome this issue, the training programme should include general reading courses tuned to the respective areas so that when they qualify as

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teachers they can be versatile and are able to handle any situations in the teaching of the subject. In addition, this kind of training would cultivate a healthy reading habit .This habit will benefit them in upgrading their knowledge and professionalism according to the change of time and current demand.

2.3.6 Self-Esteem in Pre- Service English Language Teachers.

Teacher trainers in Malaysia very often have to work with pre-service teacher trainees who are not proficient in English. They consequently face real problem making role models out of them. These pre-service teachers lack self-esteem due to their poor command of their English Language especially the Innate Communicative Abilities. This ability would demoralize a teacher when he faces his students in future.

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"The teacher of a language is the learner's MODEL especially as far as the SPOKEN language is concerned, and if the teacher's command of the language is inadequate the learner's achievement will be impaired....It is a source of great discouragement for a learner to have a teacher whose command of the language is inadequate, who makes obvious errors in the classroom, who is uncertain about meanings and grammatical patterns." (Strevens,1985, p.23)

So, it is clear that this group of pre-service teachers has to improve their spoken language especially where accuracy is concerned in order to get the confidence of their future students thus building their self-esteem. It is vital that Pre-Service English Teachers should acquire their Innate Communicative Abilities so that they can appear confident to their students. At the same time as role models, as it is important that they are good role models or it might be the case of the blind leading the blind. So, the teacher trainers

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should advocate any kind of exercise or strategy which can in the short term help them to minimize errors and build their self-esteem which will hold them in good stead in the long run. The knowledge that they have within themselves (a reservoir of strategies to overcome linguistic handicaps) will help not only the teacher but also the learners in the long run for they too will be listening to fairly respectable levels of English. Lim Soh Lan and Maya Khemlani-Devid, University of Malaya in their study "Building Self-esteem of Teacher Trainees-Awareness of Innate Communicative Abilities" has recommended that the English Proficiency component of the Bachelor of Education(TESL) programme include the following:-

i. an error analysis of teacher talk.
ii. An awareness phase where TT reflect on the Communicative strategies(CS) they have made use of and
iii. An awareness of the entire gamut of CSs available to them to achieve accuracy and effectiveness in teacher talk.

Therefore, in order to make a good English Language teacher, he or she should acquire enough skills so that, his or her confidence and Self-Esteem are boosted at the pre-service training course.

2.3.7 Illiteracy in Electronic Delivery of Course Materials and Computer Mediated Communications.

A serious issue that should be addressed here is the shortcoming the pre-service teachers are having that is the illiteracy in the usage of electronic teaching aids and the

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usage of multi-media. Now, basically we are in the bandwagon of cyber era. Like it or not we have to learn the skills in using the electronic gadgets or teaching- aids in order to keep up with the progress in the educational field. That is the reason why our government in general and the ministry of education specifically are spending millions of ringgit to launch the multi-media programmes in schools of all levels. The ministry expects the teachers to use these medias effectively in delivering the knowledge of specific discipline to students. The issue now is, how many of these teachers especially the Pre-Service teachers can operate and use these gadgets effectively. Do they have the required knowledge in these area? As it is a lot of investment is going to waste especially in schools because most the existing teachers do not have the knowledge to use the electronic equipment and so they fall back to the traditional method of "chalk and talk". The Ministry of Education realizes this problem and is also trying to address this problem by introducing courses on how to use these teaching-aids in schools. Some teachers show no interest in acquiring the extra knowledge and others develop the phobia of using this equipment in class due to bureaucracy in schools. This problem should be tackled at the training level where the pre-service teachers should be given enough training in theory and practical so that the use becomes a part and parcel of teaching career. In order to do that the trainers should also have a profound knowledge in this area. More practical training should be given so that the pre-service teachers who graduate from the universities or colleges are not able to use them fully but also encourage or assist the senior teachers to use them effectively. We should take into account of some students who are very good in using the electronic equipment. Therefore, we as teachers should prepare ourselves to either supersede or at least be in par with the smart students in using

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these electronic gadgets. In order to achieve this objective, the Pre-Service teachers of English Language should be trained properly so that they do not encounter any form of cultural shock when they are posted to elite schools where students are from the elite society and they are quite exposed to such kind of latest electronic inventions. Hence, Pre-Service Teachers should be taught to;

- To do research on their own to acquire as much knowledge as they can in the electronic field especially equipment related to teaching and learning.
- Need to improvise or do something related to teaching and learning.
- Immerse in hands on training so that the Pre-Service teachers would have acquired sufficient experience before they take the teaching task.
- Expose the Pre-School teachers to the real situation in schools so that they can gauge the level of students' knowledge in this field and also prepare themselves in order to overcome the cultural shock .

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The exposure to the electronic equipment and teaching-aids should be made compulsory as part of the training programme and enough practical training should be given to these teachers to prepare them for their future undertakings.

2.3.8 Pre-Service English languageTeachers-The issue of Gender and Ethinicity.

The teaching profession is facing another problem of gender. This profession is mostly monopolized by female teachers. The man teachers seem to be a dying breed as

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the number of man teachers reduces in number in every intake of new students to the teaching course. The reason for this phenomena is related to the nature of the job itself where the profession is dealing with 'kids' or students and being ladies who fit themselves well into the motherly role. Unlike males who perceive this profession as more for ladies and not challenging. In addition they feel that the profession has less prospect in terms of progress compared to other professions. The incentive is also another factor that contributes to this problem. They feel that they can earn more if they are in other profession or job. This stigma can be considered true in the 70's and 80's where teachers were not paid very well and some man teachers opted-out for jobs with better prospects. Hence, now most of the schools have very few man teachers and the school heads are facing problem carrying out certain activities such as sports and other outdoor activities. Although the situation has changed, yet the perception of males towards this profession remains strong. This is one of the reasons why not many males are applying to be teachers. Hence, this profession has become female dominated.

Another reason which contributes towards this problem is the number of school dropouts at present are mostly boys. According to a report by Human Rights Commissioner, Tan Sri Ramon Navaratnam in a local media, 10,695 boys dropped out in the year 2003 compared to 8,213 boys in the year 2001, in comparison to the girls, a total of 9,865 girls dropped out of primary schools in the year 2002. The figure was the same in 2003. The staggering figure shows that the number of boys who dropped out of school is alarming. One of the reason given by him is lack of male teachers to carry out activities.

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"We focus and emphasize more on academic achievement and boys are usually inclined for other hard activities. There have been instances when a female teacher is supposed to supervise boys playing football. Obviously, the teacher, being a female, would not show the same interest in the game as the male teacher and when the teacher does not show interest, the boys lose interest, too".(Navaratnam,NST, 2006).

So, as too few male candidates apply for the teaching profession, too few male teachers are produced. Hence, the Ministry of Education faces an acute shortage of male teachers to carry out certain duties such as coaching games and dealing with discipline problems. Now, the selection commission is trying to recruit more qualified male students into the teacher training centres. However, the disparity between the number of male Pre-Service teachers and female Pre-Service teachers is still wide. The ministry needs to formulate a formula may be in terms of perks or prospects in order to attract more male students into this profession.

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Another issue is the ethnicity. The findings by Dr.Nor Azmi Bin Mustafa, from Faculty of Languages, Universiti Pendidikan Sultan Idris, reveals that the ESL pre-service teachers generally have an eclectic view of education. He says that only a few were classified as progressive and this view is more for female pre-service teachers as they have a more eclectic view of education compared to the male pre-service teachers. Another finding revealed by him is the Malay pre-service teachers have a slightly less eclectic belief compared to the non-Malay pre-service teachers. There should be more studies conducted and this prevailing situation should be rectified in order to train more effective teachers especially the male teachers.

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2.3.9 Lack of accountability among the Pre-Service Teachers.

Accountability and dedication are two virtues a teacher should have or instill in them. This will ensure the good name of the profession and will create super-teachers who will toe the line of the teaching profession to excellence. However, these two values lack in some of the pre-service teachers. It could be due to a few reasons;

- The teaching course is of not their choice.
- Teaching course as the last resort.
- Financial support by the government.
- Lack of model role in the institution.
- Demoralized due to critics by public and media.

This problem will later lead to frustration among them once they are qualified as teachers. Therefore, the concerned parties (Selection board, Ministry, Media, Parents and Teachers Association etc.) should play a vital role in ensuring the success of Pre-Service teachers to be trained as accountable and dedicated teachers.

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Conclusion

We have many centres or institutions training teachers but to train good dedicated teachers is always a difficult task because there are several issues that should be addressed as discussed above. These issues and challenges can only be solved if all the related parties such as the parents, teachers, departments, ministry, policy makers, public, media and the politicians work hand in hand to solve or over come the shortcomings faced by the school English Language teachers and the institutions that train them. Hence, the newly trained teachers would be made up of a breed of professionally high esteemed teachers and they can contribute towards nation building effectively as teachers who have a good proficiency not only in the English Language but also the subject knowledge in teaching Mathematics and Science in English..

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CHAPTER 3

METHODOLOGY

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3.1 Description of Research and Methodology

(a) **The sample(Subject):**
• 30 form three students from a secondary school..
• students consist of mixed abilities.
• Students consist of mixed races proportionately.
• Students from different environment (SES).
• Students consist of weak, average, good and excellent category.

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b. **Instrument**

i). Questionnaire

a. MCQ (Tick the related column)

b. Fill in the blanks

ii). Assessment Tests;

a. Test in English.

-Science Paper 1.

- 30 students of mixed abilities.

b. Test in Bahasa Melaysia.

-Science Paper 1

-30 students of mixed abilities

iii). Interview-Oral.

Subject – Teachers

-5 English Teachers who are assigned to teach form 3 students.

©. Procedures:

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Qualitative Research

The study will be conducted in sequence as below;

Data gathering : Primary data

i). Answering the questionnaire-Students.

ii). Interview : Written and oral–Teachers.

iii). Tests (30 students are tested with Science 2005 Trial Examination questions in Bahasa Malaysia and later in English Language)

Data Analysis: Secondary Data

i). The papers are corrected and both the results obtained..

ii). Interview results to substantiate findings of data obtained from questionnaire.

iii). Comparative study of the Tests. (BM. & Eng.)

iv). Comparison with their PMR results.

Tabling of the data obtained.

Analysis of the data.

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CHAPTER 4

DATA ANALYSIS

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4.1 Collection of Data

In this chapter, data which will be obtained from the questionnaire will be analyzed and tabulated accordingly. In specific terms the questionnaire is meant to elicit various information concerning the respondents' race, language exposure, parental guidance and other relevant factors which may influence them in achieving the reading skills necessary at the Form One level. Part One of the questionnaires basically elicits the background information of respondents in terms of sex, race, language used at home, etc. The findings are tabulated below.

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In order to maintain high validity and to avoid discrimination, due consideration was given to respondents' sex. In this respect, 15 male respondents and 15 female respondents were selected. (Refer Table 6)

Sex	No.	%
Male	15	50
Female	15	50
TOTAL	30	100

N = 30

Table 6 : Sex distinction of respondents.

Importance was given to racial proportion of respondents. The equal proportion of respondents according to their race will prove that the racial factor does not influence the result of this study. Therefore, 12 Malay students, 9 Chinese students and 9 Indian students were used in this study, (Refer Table 7)

Race	No.	%
Malay	12	40
Chinese	9	30
Indian	9	30
TOTAL	30	100.0

N = 30

Table 7: Respondents distinguished according to race

In analyzing their language-use at home, it was found that all the 30 respondents can read and understand Bahasa Melayu while 28 respondents (93.3%) can read and

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understand the English language. (Refer Table 8). As both the languages use the same graphic symbols it is pertinent that 6.7% of the respondents who failed to read and understand English language but succeeded in acquiring the skills in Bahasa Melayu can be motivated and taught to be proficient in attaining the reading skills.

Language	No	%
Bahasa Melayu	30	100
English Language	28	93.3
Chinese Language	3	10
Tamil Language	3	10
TOTAL	30	100

N= 30

Table 8: The language the respondents can read and understand

However, data shows that 93.3% can read and understand English texts which means that only 6.7% of the respondents are poor in reading and understanding. Further analysis reveals that 7 (23.3%) of the respondents have gone through the vernacular primary education, where English is only introduced in the third year. But, surprisingly, the data indicates that 28 (93.3%) of them can read and understand English although 20% of the respondents came from the vernacular schools. that means only 6 respondents who are from the vernacular primary schools have acquired the reading skills although English Language is only introduced in Year 3. Hence, 2 respondents who are from the vernacular schools are not able to acquire the English Language skills.

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Primary School	No.	%
Sekolah Kebangsaan	13	43.3
Sekolah Rendah Kebangsaan	10	33.3
Sekolah Rendah Jenis Kebangsaan (Tamil)	-	00.0
Sekolah Rendah Jenis Kebansaan (Chinese)	7	23.3
TOTAL	30	100

N= 30

Table 9 : Type of school attended by respondents during their primary education.

The findings reveal that all the respondents' fathers are working and the majority of the respondents are from the average income group. (refer Table 10)

Income in Ringgit Malaysia	No.	%
< 500	3	10.0
to 1500	11	36.7
> 1501	16	53.3
TOTAL	30	100

N = 30

Table 10: Monthly income of respondents' family

The study also revealed that although the respondents' parents are from the average income group but most of them (11%) are labourers and only 6.7% of their parents are professionals. (refer Table 11)

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Nature of work	No.	%
Labourer	5	16.7
Semi-skilled	7	23.2
Skilled	11	36.7
Professional	2	6.7
Businessman	5	16.7
Total	30	100

Table 11 : Nature of respondents fathers occupation

The data shows that only 26.7% of the respondents mothers are working. Most of them are housewives. Among the working mothers, 10% consists of labourers and another 10% are businesswomen and there are no professionals.(Refer Table 12)

Nature of work	No.	%
Labourer	3	10
Semi-skilled	1	3.3
Skilled	1	3.3
Professional	0	0
Businesswomen	3	10
Housewives	22	13.4
Total	30	100

N = 30

Table 12: Nature of respondents mother's occupation

The data obtained also shows that the respondents are from the average SES group. It clearly shows that their SES does not have any negative influence on their educational achievement. But, the parents' educational background plays a vital role in motivating their children to achieve better grades in school. Therefore, the investigation on the parents' educational level explicitly shows that 43.3% of the parents have only attained

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lower Secondary education(Form one to Form Three). Only one parent has been to the university. This data reveals that the majority of parents only have average educational background.

4.2 Respondents' personal involvement in reading activities

Part Two of the questionnaire reveals the respondents' personal involvement in the reading activities. The data collected in this section will further enhance the background information gathered in Part One.

Findings on the time spent by respondents in reading at home are very encouraging. All the respondents seem to read everyday. A majority (40%) of the respondents read between one to three hours per day and 30% of them read between one to three hours per day and 30% of them read for about an hour.

Duration of reading time	No.	%
Do not read at all	-	-
Read less than one hour	7	23.3
Read for about one hour	9	30.0
Read for one to three hours	12	40.0
Read for more than three hours	2	6.7
Total	30	100

N = 30

Table 13: Duration of time spent for reading by respondent each day

The data on the source of reading materials available to the respondents is collected through the questionnaire. The data shows that the main source of exposure to

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reading materials is the library. Although some of the respondents buy and get books from friends, majority of them seem to rely on materials borrowed from the school library.

Source	No.	%
Library	23	76.7
Friends	14	46.7
Teachers	12	40.7
Bought from shop	17	56.7
Received as gifts	3	10.0

N = 30

Table 14: Source of reading materials available to the respondents

4.3 Findings obtained through questionnaires and oral interview from Form 3 Science teachers.

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The study from 4 Science teachers reveals that out of 30 students chosen 4 students have problem reading and understanding both in Bahasa Malaysia and English Language. It is also analysed under the racial strata and found that 4 Malay students and 2 Indian students face the difficulty in comprehending both the languages specifically the Science subjects. However, most of the students can read and understand and comprehend in the

English language well. The teachers also revealed that a child faces problem when he or she has low proficiency in both reading and verbal ability. This is mainly due to lack of exposure to the language, less usage of the said language at home and also the lack of

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learning ability. Another reason discovered is teachers who have failed in using the effective methods in identifying the weak students and also the counter steps in carrying out remedial lessons to these target students. In addition, the ineffective teaching methods seem to be also another reason in attracting the students towards the effective teaching and learning of the English Language. According to the teachers observation, it is discovered that only about 10% of the students have lost interest in learning the language and the teachers are facing problem in attracting the students towards the learning of this subject in Science. The teachers feel that emphasis should be given in English Language since pre-school. Only than the students will nurture the language and create the interest towards this language. In order to achieve this aim, the teachers too must be proficient in the language and also be effective in using the proper technique in imparting knowledge from the early stage of education. If the teachers fail to do this, the majority of students will give up and develop a negative attitude towards this language. The teachers also recommended the use of dual language in teaching the Subject until the students have attained certain level of proficiency in the language. Hence, the teachers feel that their role is very prominent in encouraging the students to master the English Language.

Summary

A detailed analysis of data on the background information and the reading habits of respondents reveals that the environment they are immersed in, their parents' educational background, their socio-economic status and types of motivation given by teachers, close family members and friends play a vital role in making an individual

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proficient in the said language. Therefore, the process of acquiring the language skills as discussed by Brennan (1980) and Smith (1973) is the interrelated processes between the respondents and all the factors discussed earlier, become crucial in determining success or failure in reading. The findings apparently reveal that the respondents in particular and students in general employ more than one strategy in the process of comprehending a text. At the Form One level most of the students seem to rely on illustrations such as diagrams, pictures or charts in understanding a text.

Therefore, it is pertinent that visual materials are of great help in teaching students who are poor in reading. In addition to illustrations, students seem to use the same strategy type used in their first language to read and understand the content of a particular text. Strategies such as skimming and scanning the passage before reading, using a dictionary to look up meaning of new or difficult words and referring to authority, are more frequently adopted by the students. The analysis of the study also indicates that there is a close link between the strategies employed and the skills used by students in the process of comprehending the text. Even the familiarity of the text will be of great advantage to the students, whereby, they interrelate the reading skills such as inferencing, proof reading and using background knowledge in order to elicit necessary information from the text.

1. Respondents' personal background.
2 Respondents' personal involvement in both the languages.
3. Strategies employed by the respondents' while doing the test.
4. Data analysis of the findings.

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4.1 Data analysis of the Diagnostic Test.

The Science Diagnostic Test is designed to find out the performance of Form three students in using the language skills to answer the science questions. specifications. (Refer Appendix C)

The data obtained are tabulated below;

No.	Respondents Names	English Language	Malay Language	PMR 2007
1.	Tasvini A/P Letchuman	19	22	D
2.	Jess Tan	19	20	B
3.	Andrew Mah Chen Wei	26	25	B
4.	Muhammad Asiff Bin Razif	28	29	A
5.	Mohamad Nazazulazwan Bin Abdul Malik	25	29	B
6.	See Fong Yiao	27	26	C
7.	Nooredayu Bt Ahmad Nazir	12	17	B
8.	Ronald Ding	33	32	A
9.	Channin Goh	31	32	A
10.	Luvendran A/L Veeramohan	34	34	A
11.	Mohamad Hafidzudin Bin Mohamed	10	14	C
12.	Shielan A/L Rajendran	32	34	A
13.	Nurnabila BT Adnan	33	32	A
14.	Deepashini	32	32	A
15.	Siti Nor Fazirah BT Amran	16	16	D
16.	Tan Yaw Bia	37	37	A
17.	Ling En Han	33	32	A
18.	Nazim Muhamad Arif Bin Abdullah	29	29	A
19.	Pervien A/L Ramasamy	35	36	A
20.	Hammad bin Mohd.Dali	25	24	A
21.	Nisha Kaur	34	31	A
22.	Muhd. Rafaie Bin Hashim	27	24	A
23.	Nur Arina BT Nurul Akla	30	31	A
24.	Ling Woan Ying	31	31	A
25.	Jamie Teon Ai Vee	33	33	A
26.	Nirosha A/P Palanisamy	21	24	C
27.	Cheong Jiunn Yan	35	32	A
28.	Muhammad Azhari Bin Mohd. Daman Huri	29	29	B
29.	Kuhan Raj A/L Purushothman	34	35	A
30.	K.Naviin	31	31	A

N = 30 Table 15 : **Result obtained from both the Diagnostic Test**

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Data shows the total marks the respondents have acquired in the diagnostic tests conducted in both the languages separately. The PMR result is also tabulated.

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CHAPTER 5

CONCLUSION AND IMPLICATION

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5.1 Conclusion

This study enables the researcher to highlight the extent to which students from a semi-urban school are able to use their language skills in learning the Science subjects in English Language and answering the examination questions. As the study is conducted in both the languages, the researcher is able to show the preference of the language used and also the effectiveness in using the language. The composition of the study group is also carefully selected and their background is also studied to ensure that the findings would be authentic. In addition the samples preferred language and the reading skills employed by them are also studied to enable the study to be more valid and reliable.

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The detail study of the subjects such as sex distinction (Table 6), Respondents' race (Table 7), the preferred language and the usage (Table 8), the school they have attended (Table 9) and respondents' personal involvement in reading activities is studied carefully in determining the strategies and language they use in understanding and learning the Subject. Besides, the family background of the respondents was also studied to find out the influence of their environmental factors in influencing the respondents preference towards a particular language in which in this case is either English Language or Bahasa Malaysia. To enable the researcher to know the background of the students, studies were conducted on various areas such as the type of primary schools the respondents attended (Table 9), Monthly income of the respondents' families (Table 10), Nature of respondents father's occupation (Table 11), Nature of mothers' occupation (Table 12) and also a demographic consideration was also given in choosing the samples for this study. Another important area studied is the type of reading materials the respondents are exposed to and the duration of their exposure (Table 13 and 14). The reading strategies used by the students were also studied to enable the researcher to find out the influence towards the students' performance in their examination. The comparison of the results of all the 30 respondents reveals the influence a particular language has towards the performance of the respondents in their diagnostic tests in relation to their PMR examination results.

This study also proves that a student performs well if the language and context of the text are familiar to him. This notion is supported by the data in Table 8. All the

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respondents can read and understand the Bahasa Malayia in comparison to 21 respondents who have acquired the skill in understanding the English Language. This has a direct link with the demographic study i.e. the background of the respondents has a very strong influence in acquiring a language. This finding influences the respondents performance in their examinations in the Science subject. About 40% of the students who have done better in Bahasa Melayu compared to 30% of the students have done better in the English Language. However, the difference is minimal i.e. the difference is only about 3.3% increase or decrease in their results. When analyzed it is found that that the difficulty of understanding the questions probably due to their lack in knowledge in that particular area and the possibility of facing difficulty in answering due to the lack of language proficiency is minimal. This finding is further reinforced after analyzing the PMR results obtained by the respondents. It is found that 23 students or 76.7% of the students obtained Grade 'A' (Distinction) in their PMR examination compared to 5 students or 16.7% of the respondents who obtained Grade 'B' and only 2 students or 6.7% obtained grade 'C' in the PMR examination. Therefore, this finding and the analysis done by the researcher have exposed an important information which indicates that the poor performance in this subject is probably due to the lack of knowledge in that subject. Putting the blame solely on the language is baseless because even a student with average proficiency would be able to do well in his exam in English Language provided he possesses the content knowledge of the subject.

The study shows that the students have used both the language in carrying out their task in answering the questions. Most of the students have used English Language

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while answering the questions and those who have used English Language seem to have performed better. At the same time we also cannot rule out a small number of students who have used Bahasa Malaysia in understanding the questions. We can deduce that the proficiency level of a language is very important in understanding a subject matter.

The study also shows that most of the students have used both the languages in attempting the questions and they have done well in both the mediums. The students also confided that most of them feel comfortable answering the questions in English Language although a few prefer to use the Malay Language .This problem arises when they have difficulty in comprehending in English Language. So, in order to overcome this problem the students' command of the English language should be improved as it has a direct link with their performance in the Science subjects.

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It is discovered that the students' performance and their state of being comfortable in studying or attempting the examination in a particular language is directly influenced by the liking and the proficiency level of the particular language. In this study most of the students seems not to have much problem, but a few have produced mixed results. This probably is due to the liking or preference either in Bahasa Malaysia or English Language.

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5.2 Implication of the study

English Language is taught as a second-language in Malaysian schools due to its cultural richness and its importance in imparting knowledge not only in the field of education, but in other fields in general. Therefore, it is the duty of the English Language teacher to make sure that his or her students are equipped with all the four skills, listening, speaking, reading and writing, before they venture into imparting the Science knowledge. Since Science and Mathematics are taught in English from the elementary level, the problem should not arise if the teachers have adhered to the Curriculum Specification and educated the students well in developing the skills in acquiring the basic knowledge of English in addition to the subject matter. The study has revealed that there should be a teamwork effort by all the parties involved such as the parents, teachers, peers and most importantly the students themselves. Infact, the teachers play a vital role in creating an interest among students in learning the subject in English Language. In order to do so the teachers themselves should be proficient in their field and in the study it is found that some teachers lack this knowledge and this affects the teaching and learning process in teaching this subject. As teachers, they should look into this area across the curriculum i.e. focus should be given to all the four skills in English Language (Listening, Speaking, Reading and Writing) besides focusing on the content of the subject. Basically, focus should be given to all the four skills mentioned above, but, emphasis should be given to reading as reading seems to be the most important skill

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needed to acquire knowledge. Reading in the related area is therefore, an indispensable channel of communication in an ever widening world. More Reading activity in Science should be encouraged as it is not a passive activity but an active psycholinguistic activity whereby meaning is formed and deciphered from the printed medium of a particular text. It is also important for a Science teacher to know the role played by the schema of an individual or a student. The 'schemata' or relevant knowledge structures are not static. All the new information will be registered in our long term memory to be elicited when the need arises. Science teachers should also understand that schemata vary from one student to the other. So, they should be aware and sensitive towards the difficulties in understanding the terminologies faced by the students in terms of schemata differences. It is the fact that no two students share the same 'shemata' or experience. Therefore, science teachers should prepare special remedial science activities which are creative not only to coach or guide the weak students, but also to create an interest in learning the subject in English Language. These activities designed should give consideration to the students' thinking capacity, cultural background, and also their past experience.

Hence, prompt action should be taken to overcome the problem faced by the Science teachers and the weak students. The Curriculum Development Centre has designed and produced various types of guide book and modules which contain all the necessary skills a Science teacher should attain and later impart into the students during the teaching and learning process. If the students fail to acquire the language skills as stipulated, then, they will face acute problem as they are promoted to a higher form. This will result in the student losing interest in the Science subject. As a result not only his

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further education will be hampered but he will also be deprived from getting vital information and knowledge related to the subject. So, as Science teachers, they should improve their own proficiency and knowledge and also identify the students who have problems in mastering their language and subject matter immediately. Once identified, they should also provide remedial session to these students in an acceptable manner in order to suit the students' need and maturity level. If they are not attended to immediately, these problems will not only accumulate but will also be accentuated as they go further in their quest for academic and economic success.

5.3 Limitation of the study

As any other study, this study too has some limitation. The study was only carried out in one particular school, therefore the scope of study is confined to this school . As this school is a semi-urban school and is considered as one of the prime school in the district .It has attained the five star status in the ranking of the Perak Education Department based on the performance in the government exams. Therefore, the students are exposed to a different kind of atmosphere where the environment itself is different compared to other rural schools. Here the exposure to the English Language is more compared to the other school simply because the student population consists of a mixed composition of students and they either use English Language or exposed to the usage of this language either in school or in the society they live in practically everyday. As a result the informal learning and mastering of this language takes place in the school. As such, this situation assists the students in understanding the science subjects better. They

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are in fact immersed in a conducive environment of leaning the subject. The teachers too play a vital role in motivating the students. Most of the teachers here are proficient in English language. Those who are weak improve their language buy exploiting the 'Buddy System' where an English teacher is assigned to the Science and Mathematics teachers to coach them in English Language whenever these teachers face problem professionally. The Science and Mathematics teachers too have a conducive environment in improving their teaching skills in these subjects. This situation may differ in other schools where a free use of this language is restricted simply because of the different environment in the usage of this language. The wide usage of this language could be also due to the culture of this school as this school roots from a missionary school. All these factors may have influenced the result of the study. However, the sample chosen comprised of students from a variety of background and from different SES. This most probably would have improved the validity of the study. In order to narrow the gap of this issue of validity, the samples for this study was carefully chosen. We cannot deny that the students here have a better exposure to the English Language compared to other rural schools. Besides, the parents also play an important role in educating their children. As most of the parents consist of the middle or higher income group and are educated, they pay attention to the importance in their children mastering the language. These literate parents know the impact the language will have on their children's lives. As stated by Zainal Arifin(NST,) most parents believe that their children's fate is not determined by how they do in the first handful of school-going years, or how they do in their primary school examinations. The fate of the children is determined by how they conduct themselves later in their lives, and that includes mastering the most popular and widely used of all languages. So, once

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the parents realize the importance of the subject they would try their level best to preparing their children in encountering their future goals in order to be successful in their lives.

5.4 Suggestions

This study has revealed a few important pieces of evidence that the educators probably should consider in order to improve the present situation so that the teaching of Science in English can be carried out effectively to achieve the objective of the Ministry Of Education of Malaysia. It is desirable that like any other subject, science should be taught to students in English but teaching the subject in their own mother tongue should be considered in schools where the students have a very low command of the English Language. When Science is taught in English Language, the poor students tend to cramp things and reproduce facts and figures verbatim in the examination. But then they fail to imbibe the knowledge or relate it to the events and facts of life. Cramming and mugging up facts and figures is not learning Science. For students who are forced to learn Science in any other language in which they are weak in other than one's mother tongue becomes burdensome tortuous and mere ritual. Such a learning cannot be permanent nor will it inspire confidence and commitment to the subject. To make study of science interesting and popular it is imperative that the students are saved from the fear of failure and terminal examinations. It cannot be done unless science teachers are well qualified and professionally fully prepared. They should also be given opportunities of refresher courses to enable them to update and upgrade their knowledge and skills. The quality of

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teacher preparation is the key factor in successful teaching of science in schools. Teaching and learning of science should be easy, simple, natural and without any kind of fear. It is only through teaching of Science by qualified proficient English Teachers in schools can the subject be taught effectively and nurture the scientific knowledge in the students in addition to developing the scientific temperament in the young generation of the country. Its teaching helps positively in the removal of superstitions and social evils. After carrying out a detailed study I have come across some important elements that should be considered in tackling the issue professionally. In order to do that we should look at some of the key issues and rectify those issues to have a free transfer of knowledge to the target group. To execute that the Politicians, Educationists, Teachers, Parents, The society and the students should work hand in hand in carrying out the curriculum designed by the Ministry of Education. The careful implementation of this programme of teaching Science and Mathematics in English language is vital for the future generation who will come face to face against the new global era which will be more challenging than now. Besides, it will also justify the millions of ringgit spent in making this programme a success. Hence, the role of all the related people are as follow;

5.4.1 The Politicians

The politicians should be more professional in thinking because they know the importance of this language through their experience and exposure to the educational system of other nations. The government exposes these politicians who are also in the front line in policy making to the key factors of a nation in achieving the success in

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certain field. For example, India and China, the emerging giants of Asia. India was once classified as the third world country has proven her capability by becoming one of the prime country in computer technology and nuclear power. Likewise, China has posed a danger to the western economy and now the United States of America fears that China would overrun the economy of the world one day and has already taken steps to see that their economy is not jeopardized by the Chinese. The politicians are aware that this is the age of science and scientific wonders and achievements. Science is very comprehensive and all-inclusive. It touches the life of all of us in so many ways. Therefore, science is a very important subject and forms an integral part of school curriculum all over the world. They also know that we are living in a scientific and technological age and therefore, its knowledge is of great significance. In addition it is a known fact that most of the developed country which were once part of the British Colony have progressed tremendously. The key factor is the English Languge which is adopted by these countries as the medium of instruction and also as the official language. Countries such as Singapore, India and Pakistan have proven themselves and the key factor is the language. So, our politicians should support the programme by motivating the society as a whole and not disorientate the society. Furthermore, the senior ministers who are directly involved in this programme should furnish the other politicians with the aim of the programme and encourage them to disseminate to the grass root level. They should not manipulate the issue just to gain political mileage in their political career.

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5.4.2 Parents

Parents play a key role in determining a policy to be successful. Most of the policies are designed to cater for the best needs of a particular group and the same goes to the teaching of Science and Mathematics in English Language. The role of parents are vital as they are the closest to their children so they should know the objective of this policy of teaching Science and Mathematics in English Language. Our former prime minister, Tun Dr. Mahathir Mohamad mooted this idea and it was implemented in the 2003. It was done after a detail study was carried out on why our students perform weakly in both these subjects. Most parents who are educated know the importance of the knowledge in both these subjects and the role played in their children's future undertaking. This notion is also shared by a lot of parents who are aware of the global revolution which is taking place and if we fail to realize than we will be left out in the main stream. Some of the views shared by parents are; Wan Intan Ahmad,(NST,2008) has stated that, " All parents want their children to go to university, either locally or overseas. Most of these institutions use English as the medium of instruction. How are our children going to catch up? ".Dr.Mohd Ezani Md Taib, a medical doctor, (NST,2008)has also reiterated, "I suggest we leave the policy as it is, as it gives our students an advantage to compete better on a global scale". SK Damansara PTA committee member Ros Mawar Zain has said that there were limitations in using English to teach Mathematics and Science. However, reverting to the national language would be too drastic. She also added that more time was needed to gauge the results of the existing policy. The parents should look into this issue positively rather than only talk of its

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weakness. The same view is also shared by a matured student who is pursuing his studies in Madrid, Spain, Geoffery (The Star,2008). Parents should realize the problems faced by their children and also the problems encountered by the Ministry of Education in implementing this new change of teaching Science and Mathematics in English. Science the examination papers are set in both the languages (dwi-bahasa) the teachers who are less proficient in English tend to teach the children in Bahasa Malaysia especially in rural areas. The students also follow the rhythm of teaching of the teacher. Hence, the interest in learning the language lacks in them. So as parents, they should monitor the usage of the language and monitor their children in ensuring that they get to learn both these subjects in English effectively. The Parents and Teachers Association (PTA) should play an effective role in making sure that the students are thought and guided properly. Their parents should also get involved discussions or giving suggestions to the school heads and teachers through the proper channels such as the PTA. They should come up with constructive criticism whereby they create a conducive atmosphere for the teaching and learning process to take effect . This can be done by the parents by coaching or encouraging the students to improve their command of the English language. This process can be carried out by parents by motivating their children to learn English. Extra coaching in the form of tuition should be carried out if they find their children too weak in this language. Besides, they should also expose them to the media and encouraging reading of quality materials such as Newspapers, Magazines and educational television programmes. Since the government has made the switch to teaching Science and Mathematics in English, then the parents should support the move and stay on course. They should also consider the hundreds of millions of ringgit which comes from the tax-

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payers are spend wisely. In fact, the parents are very important people in deciding whether the students will do better or not in the classroom and in understanding the subjects.

5.4.3 The Teachers

The most important people who determine the success of this programme are the teachers. The have to get prepared to face the challenges in the main stream of the education system. They have to be prepared to have the right mindset and be committed in executing the programme effectively. They must change their mindset. Dr.Tan Eng Bee says that, "The teachers' mindset must be changed and shaped to understand their new role of producing quality students"(Sunday Star,Sept.2008).To make the teaching of science interesting and popular, it is imperative that the students are saved from the fear of failure in terminal examinations. It cannot be done unless science teachers are well qualified and professionally fully prepared. Although many they are given many opportunities of refresher courses to enable them to update and upgrade their knowledge and skills in English Language and the teaching of Science in English language, yet we find some teachers who are unable to cope up with the training and coaching provided by the ministry of education. It is a known fact that the quality of teacher preparation is the key factor in successful teaching of science in schools. Teaching and learning of science should be at ease , easy, simple, natural and without any kind of fear. So, teachers who have been assign to teach the subject have to find ways and means to improve their language proficiency , knowledge and teaching skills before they embark in

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disseminating their knowledge of science to the students in English Language. They have to be serious in improving their language proficiency either through the "buddy" system or by attempting courses designed by the ministry. They can even for private tuition in order to improve their language if necessary. Hence, the spirit and the morale of the teachers are vital in making sure that this programme succeeds. As teachers are regarded also as academicians in the real sense are not ordinary wage earners. They are education professionals who are held in high esteem by the public because they are entrusted with the solemn and serious task of shaping, building and preparing the students for the political and economical challenges in this global world. Therefore, the need for good teachers is vital and the teachers themselves should realize that and work towards those goals. Those teachers who feel they cannot should venture into other fields and let those skilled teachers to do their job well. There should not be room for excuses to let any drawback in this programme mooted by the ministry of education to prepare the future generation towards the future global era which is going to be very challenging to the future population. So, we should not blame on the students if we do not provide them with good talented teachers to teach them. As we can see the global changes and the progress in the knowledge of science globally, reverting back the teaching of Science in Bahasa Malaysia would be a disaster to the whole educational system of Malaysia. So, teachers have to buck up in order to keep up the demands of the students. To solve this problem, the selection of future candidates for the teacher training colleges and universities should be based only on merits giving due importance in the keenness in becoming a teacher and having a good command of the English Language.

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5.4.4 Students

The students are the core subjects in learning the Science subject in English Language. They determine the success and failure of this programme. Therefore, they should be motivated towards the objectives of carrying out this programme. A lot of exposure such as serving the internet, reading in English language and using the English Language in the class should be extensively advocated. As there are a lot of soft-wares available in the market and also being prepared by the ministry, there is no question of lack of teaching materials. It is also the duty of students to explore and venture into there interesting areas in order to reep the unlimited knowledge in learning the Science subject in English Language. Once they get to know the beauty of the language and the tremendous knowledge of Science they can venture into through this language, then a lot of self-study will take place. Hence, these students will not depend on the teachers fully in acquiring the Science knowledge.

5.5 Conclusion

The teaching of Science using English Language as a medium of instruction has become the hot topic of discussion lately. As we know it is simply can be termed as playing with the future of the coming generation. Therefore, we must be very sure in what we are doing before we meddle in any of these existing policies. The same goes to the teaching of Science in English Language. There are a number of views shared by teachers, community leaders, PTA(Parents and Teachers Association) members and

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professional bodies. One view is that the policy should continue and its' implementation be strengthened. The second view is, it should only be implemented at higher level, either at the secondary level or Year Two in primary school. The third view is for the government to scrap the policy and revert to teaching the subject in Bahasa Malaysia. According to my study, I strongly feel that if all the parties involved (ministry, parents, teachers and students) play their part well, than this programme will definitely be a success. Of course there will be some weak students who need special attention. These weak students will have problem in the subject immaterial whether its taught in English Language or in Bahasa Malaysia. Therefore, we cannot gauge the success only by observing these weak students. The scope of observation should be on a bigger group. It cannot be denied that there will be some teething problems initially. However, these problem can be overcome gradually by advocating special remedial programmes. Generally speaking, English seems to be the key language for international education. Therefore, teaching Science in English will definitely save the students plenty of time in understanding the scientific ideas since most of the reference books are in English and they can perform better internationally. There is no easy way out in acquiring the knowledge of Science whether its taught in English or Bahasa Malaysia, because students have to work hard as the knowledge they are imparted with is new to most of them. So, as long as the students and the teachers are willing to work harder on their own initiative, they will definitely do well. Furthermore, the government has made the switch in teaching Science and Mathematics using English Language as the medium of instruction and it is still in the infant stage and it should stay on course. Any change in this policy not only would waste time and taxpayers money but also would cause a strain

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and confusion among the teachers and most importantly the poor students. It would deprive the students of the advantage to compete better on a global scale. Therefore, I strongly recommend that the teaching of Science in English Language should be maintained for the betterment of our future generation.

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APPENDICES

APPENDIX A

QUESTIONNAIRE FOR STUDENTS

To Principals and teachers,

This questionnaire has been prepared for research purpose only. As such, all the information given in this questionnaire will be treated as confidential and the respondents will not be identified. The questionnaire will be destroyed as soon as the project is completed.

Dear Students,
You are kindly asked to answer the following questionnaire. All you have to do is to tick (/) your choice in the boxes given. Write if necessary in the spaces provided.

PART ONE

1. Sex: Male ☐
   Female ☐

2. Race: Malay ☐
   Chinese ☐
   Indian ☐

   Other _____
   (Please state)

3. The language / languages you can read and understand. (You can tick (/) More than one)

   Bahasa Malaysia ☐
   English language ☐
   Chinese language ☐
   Tamil language ☐

   Others _____
   (Please state)

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4.Primary Education

Sekolah Kebangsaan ☐
Sekolah Rendah kebangsaan ☐
Sekolah Kebangsaan Jenis Kebangsaan (Tamil) ☐
Sekolah Kebangsaan Jenis Kebangsaan (Cina) ☐

5. Family Income

Below RM500 per month ☐
Between RM501 and RM1500 ☐
RM1,501 and above ☐

6. Does your father work? Yes ☐
No ☐

7. What does he do? _____

8. Does your mother work? Yes ☐
No ☐

9. What does she do? _____

10. Are you staying in your own house?
Yes ☐
No ☐

If no, please tick (/) one of the following
Own house ☐
Rented House ☐
Government Quarters ☐

Others _____
(Please state)

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11. Parents educational level

Did not go to school	
Primary school only	
Secondary school (Form 1 – 3)	
Secondary school (Form 4 – 5)	
Form 6	
College	
University	

12. The language (s) that your parents can read.

	Father	Mother
Cannot read in any language		
Can read in Bahasa Malaysia		
Can read in English Language		
Can read in Chinese Language		

Others :

_____

_____

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13. The language (s) that your parents can understand.

Can understand Bahasa Malaysia	
Can understand English language	
Can understand Tamil language	
Can understand Chinese language	

14. On the average , how much time each day do your parent spend on reading.

	Father	Mother
Do not read at all		
Read less than one hours		
Read for about two hours		
Read more than two hours		

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15. Beside school text books, how many other English books are there in your house?

More than 20 books	☐
About 11 to 20 books	☐
About 5 to 10 books	☐
Less than 5 books	☐
None at all	☐

16. How many different English magazines do your parents buy every month?

None	☐
Only one magazines	☐
Two or three magazines	☐
More than 3 magazines	☐

Name the magazines.

(i) _____
(ii) _____
(iii) _____
(iv) _____
(v) _____
(vi) _____

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17. How often do your parents buy newspapers?

Everyday	☐
Only on Sunday	☐
Occasionally	☐
Never	☐

18. Name the newspapers

a) _____
b) _____
c) _____
d) _____

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PART TWO

19. How much time do you spend each day on reading books at home?

I don't read anything	☐
Less than an hour	☐
About an hour	☐
About one to three hours	☐
More than three hours	☐

20. Where do you get most of your reading materials from?

Library	☐
Friends	☐
Teachers	☐
Bought from shops	☐
Received as gifts	☐

What types of books do you like to read?

a)_____

b)_____

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c) _____

d) _____

e)_____

21. How do you feel about 'reading'?
(You can tick more than one)

Reading is a waste of time	☐
I would rather read a book than do anything else	☐
I don't care much about reading	☐
Reading is good as a means of language learning	☐
I enjoy reading a story more than watching it on T.V.	☐
I only read when something really interests one.	☐
I don't think reading can help me in anyway	☐

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22. Who gave you a lot of encouragement to read (You can tick more than one)

Parents	☐
Brothers	☐
Sisters	☐
Friends	☐
Relatives	☐
Others _____	

23. What types of books do you like to read? (You can tick (/) more than one)

Fiction		**Non-Fiction**	
Science	☐	Science	☐
Mystery	☐	Geography	☐
Romance	☐	History	☐
Adventure	☐	Others _____	
Fairy tale	☐	_____	
Folk tale	☐		

Others _____

_____

_____

(please state)

PART THREE

While reading	Never	S/time	Often	Always
1.Do you look up meaning of new or difficult words in the dictionary?				
2.Do you ask your teacher, parents ,(or other) for the meaning of new or difficult words?				
3.Do you discuss with your teachers, friends, parents, or others when you have difficulties while reading?				
4.Do you translate difficulties or new words into your first language (Bahasa Melayu / Chinese / Tamil) ?				
5.Do you guess the meaning of difficult				

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words?				
6.Do you use what you know (your previous knowledge) in understanding the text. (an English text)?				
7.Do you connect to what you already know (personal experiences) when reading a text in English?				
8.Do you think in your first language while reading in English?				
9.Do you use knowledge of other language (s) in trying to understand a text in English?				
10.Do you skim and scan the passage before reading the whole text?				
11.Do you read only the key words while reading the text?				
12.Do you skip or ignore new or difficult words while reading a text?				
13.Do you underline the main points of the text?				
14.Do you make short notes while reading a text?				
15.Do you refer to illustrations (diagrams, pictures, charts etc.) accompanying the text while reading?				
16.Do you ask questions in your mind to help you understand the text better?				
17.Do you use any other methods?				
_____ _____ _____ (please state)				

Thank you very much for your co-operation.

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APPENDIX B

QUESTIONNAIRE FOR FORM 3 SCIENCE & ENGLISH TEACHERS

Dear Teachers,

Please tick (/) or write the relevant information in the boxes provided. Where boxes are not given, write the information in the spaces provided.

1. Do you have students who are not able to read in English? Yes (____) No (_____).

2. The majority of the students who are unable to read in English Language are from which racial group?

   _____

3. What is the percentage of pupils/students from that particular racial group who are not able to read in English Language?

   More than 75% (____)
   Between 50-74% (____)
   Between 41-49% (____)
   Between 21-40% (____)
   Below 20% (____)

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4. As an English teacher, how would you rate the level of your students' English reading and understanding ability of your students?

   Excellent (_____) Good (_____) Average (_____) Poor (_____)

5. In your opinion, which statement/statements describe reading failure? (You are

   allowed to tick more than one reason).

   a). A persistent failure to perform at expectancy levels (_____).

   b). A continued poor performances or decreasing score consistently below those of his peers. (_____)

   c). A marked discrepancy between his aural verbal capacity and his reading ability. (_____)

   d). A child is low in both reading and verbal ability. (_____)

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6. Basically Tamil & Chinese students from vernacular schools and Malay students from National Schools (Sekolah Kebangsaan) are poor readers. In your opinion what could be the reason for their failure?

_____

_____

_____

7. How do you identify your pupils/students who are failing readers' in English?

a. Give them reading test. ☐
b. Based on their assessment/test marks. ☐
c. According to their reading capability. ☐
d. Your own observation. ☐
e. Others(Please state).

_____

8. In your professional opinion, do you think that the form 3 students this year have mastered the necessary English Language skills in understanding the content of the Science subject which is taught in English Language?

Yes, _____ Reason:_____

No, _____ Reason :_____

9. What is your view or opinion in teaching Science in English to students in Malaysian schools ?

_____

_____

_____

_____

10. Please mention the problems encountered by you as a Science teacher in your school.

_____

_____

_____

_____

Thank you very much for your co-operation.

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APPENDIX C

55/1
Sains
Kertas 1
Ogos
2005
1 jam

PEPERIKSAAN PERCUBAAN
PENILAIAN MENENGAH RENDAH
NEGERI PERAK
2005

SCIENCE
SAINS

Paper 1
Kertas 1

1 hour
Satu jam

DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO
JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *This paper is bilingual.*
Kertas soalan ini disediakan dalam dwibahasa.

2. *Question on the right page is the translation in Bahasa Melayu of the question in English on the left page.*
Soalan di halaman kanan adalah terjemahan dalam Bahasa Melayu soalan Bahasa Inggeris di halaman kiri.

3. *Candidate is required to read the information on page 2 or page 3.*
Calon dikehendaki membaca maklumat di halaman 2 atau halaman 3.

Kertas soalan ini mengandungi 31 halaman bercetak 1 halaman tidak bercetak.

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IMFORMATION FOR CANDIDATES

1. *This question paper consists of 40 questions.*

2. *Answer* **all** *question.*

3. *Answer each question by balckening the correct space on the answer sheet.*

4. *Blacken only one space for each question.*

5. *If you wish to cancel your answer, erase the blackened mark that you have made. Then blacken the sapace for your new answer.*

6. *The diagrams in the question provided are not drawn to scale unless stated.*

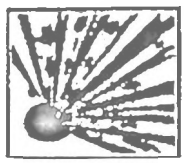
7. *You may use* **non-programmable** *scientific calculator.*

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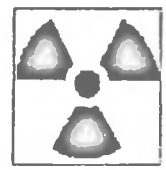
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1. Which of the labels below can be found on the paraquat poison bottle.

A. 

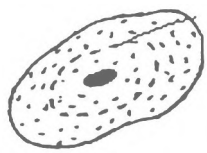
C. 

B. 

D. 

2. Among the followings, which is **not** the correct step in handling a microscope?

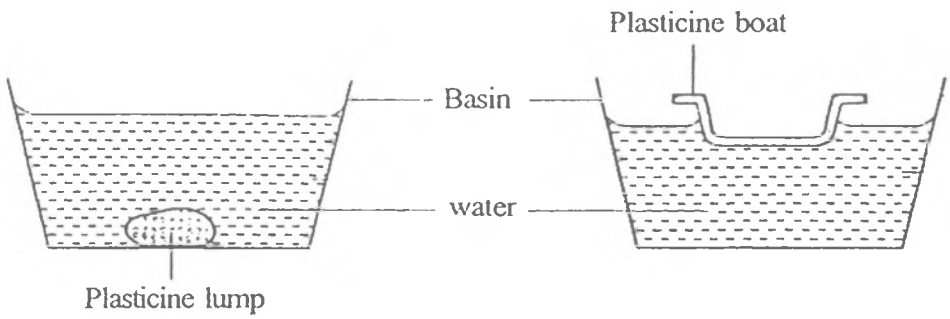
A. Clip the slide on the stage
B. Place the microscope on a level surface
C. Adjust the fine focus knob first before the coarse focus knob
D. Adjust the mirror so that sufficient light enters the microscope



3. The diagram above shows the structure of a certain cell. This cell does **not** have

I. vacuole
II. cell wall
III. chloroplast

A. I only
B. I and II only
C. II and III only
D. I, II, and III



4. The two plasticine used in the activity above has the same mass. Why does the plasticine boat float on the surface of the water ?

A. The plasticine boat is bigger than the plasticine lump
B. The plasticine boat is denser than the plasticine lump
C. The plasticine boat has a smaller volume which causes its density to be less than that of the water
D. The plasticine boat has a greater volume which causes its density to be less than that of the water.

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- does not have a definite shape
- takes the shape of the container in which it is placed
- the particles move randomly

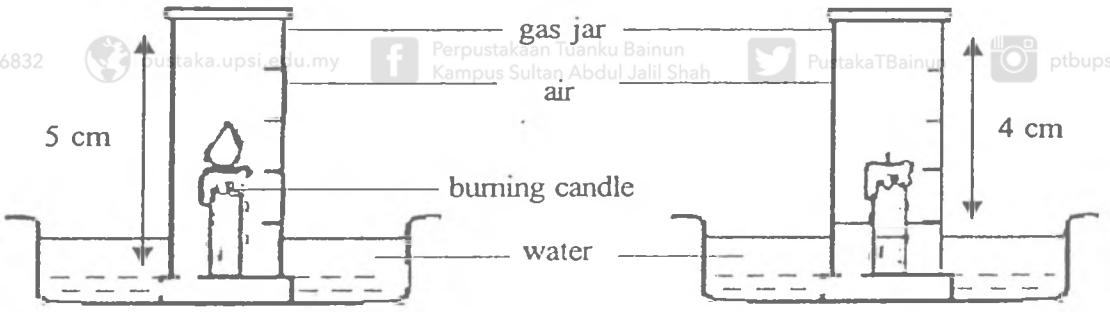
5. Name the state of matter that has the properties above

I. Liquid
II. Solid
III. Gas

A. I only
B. I and II only
C. II and III only
D. I, II, and III

6. Among the following processes, which does **not** need oxygen?

A. Rusting
B. Burning
C. Respiration
D. Photosynthesis



7. The diagram shows an activity to determine the percentage of oxygen in the air. The following are data obtained from the activity

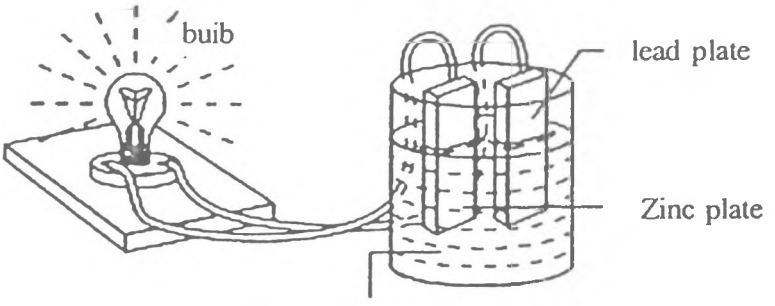
Height of the air column at the beginning of the activity = x cm
Height of the air column at the end of the activity = y cm
Difference in heights of the air column = (x – y) cm
Percentage of oxygen in air = $\frac{(x - y)\ cm}{x\ cm}$ X 100%

Using the data obtained from the activity, calculate the percentage of oxygen in the air.

A. 20 %
B. 30 %
C. 45 %
D. 50 %

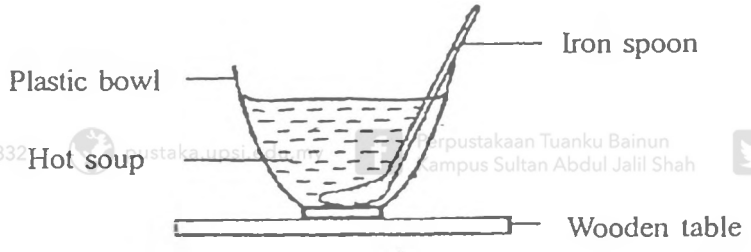
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8. What are the energy changes taking place in the simple cell above when the bulb lights?

A. Light energy → nuclear energy → heat energy + kinetic energy
B. Chemical energy → electrical energy → heat energy + light energy
C. Potential energy → kinetic energy → electrical energy → kinetic energy
D. Chemical energy → electrical energy → kinetic energy → potential energy



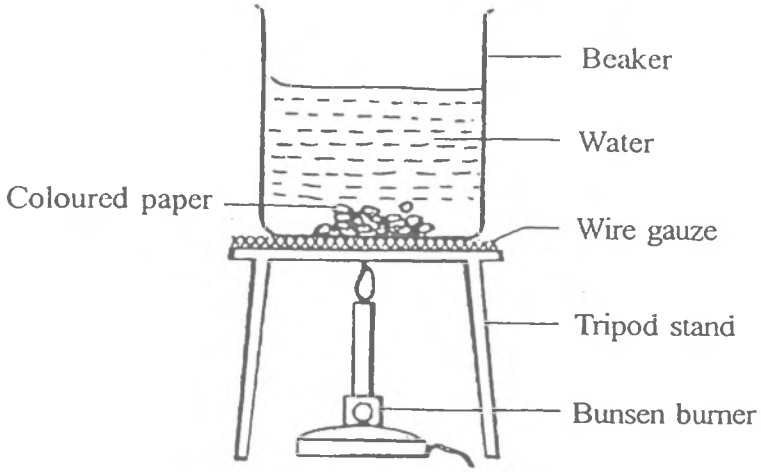
9. In the figure above, heat is transferred from the hot soup to the surroundings through

I. convection
II. conduction
III. radiation

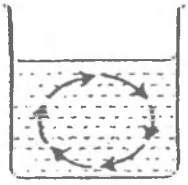
A. I, II, and III
B. I and II only
C. II and III only
D. I only

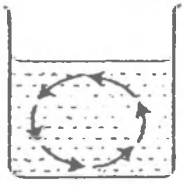
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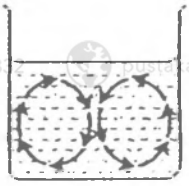
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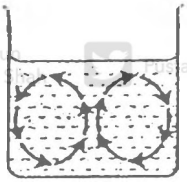


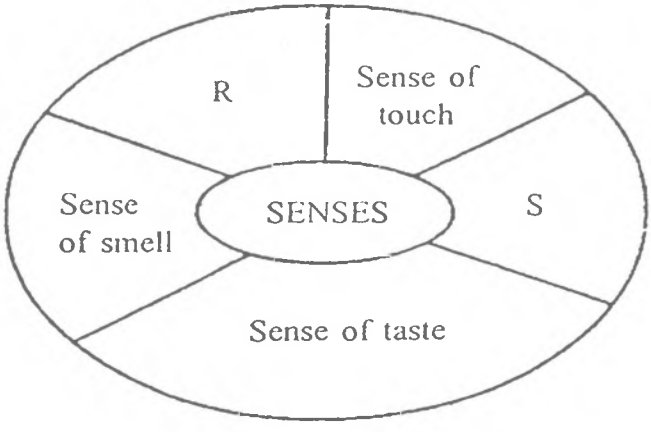
10. The figure above shows a beaker containing water, with small pieces of coloured paper in it. The beaker is then heated by a Bunsen burner. Which of the following shows the correct movement of the pieces of paper?

A. 

C. 

B. 

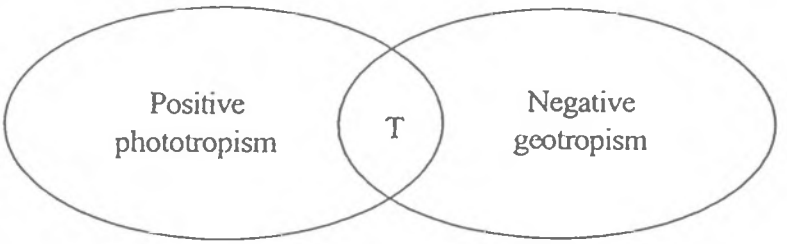
D. 



11. The figure shows the human senses.
R and S are used in

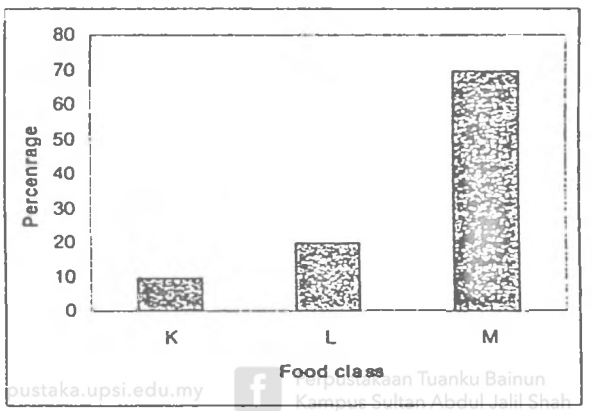
A. tasting the chicken curry
B. selecting a good durian
C. watching a movie
D. mother hugging her baby

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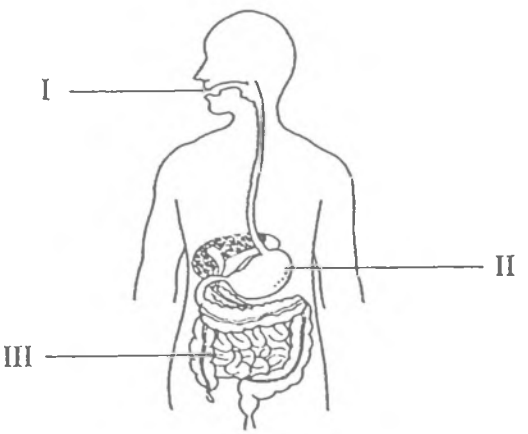
12. Based on the figure above, which part of a plant can be represented by T?

A. Fruits
B. Roots
C. Shoots
D. Stems



13. The bar graph shows the food classes found in bread. What is the function of M?

A. Repair and replace worn out tissues
B. Supply energy for work
C. Prevents constipation
D. Build strong bones and teeth



14. The figure above shows some parts of the human digestive system. Which part/s digest/s protein?

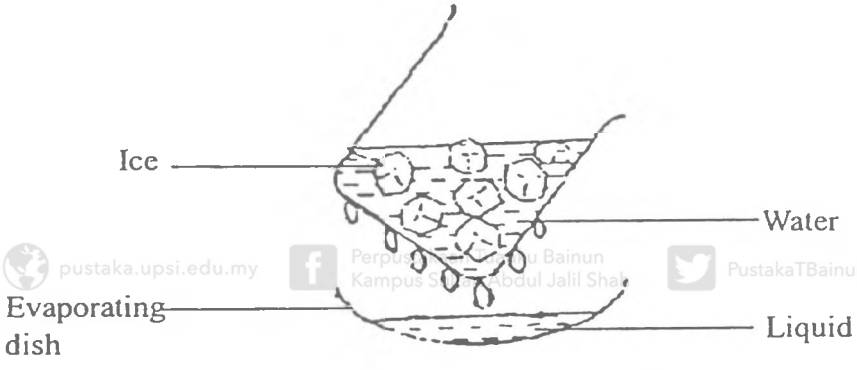
A. II only
B. I and II only
C. II and III only
D. I, II and III

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Type of interaction	Brief explanation
P	An organism hunts and catches another organism for food
Q	A relationship between two different organisms where both benefit

15. The table above shows a brief explanation on interactions among living organisms. What interactions represent P and Q?

	P	Q
A.	Parasitism	Mutualism
B.	Prey-predator	Mutualism
C.	Prey-predator	Commensalism
D.	Parasitism	Competition



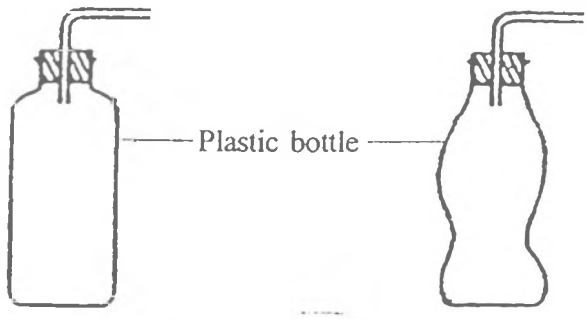
16. The above figure shows an activity to study the process of changes in states. Which of the following processes is/are happening in the activity?

A. melting
B. condensation
C. freezing and melting
D. melting and condensation

17. Leela is stung by a bee. Its sting is alkaline. Therefore she has to treat the wound with

A. distilled water
B. lemon juice
C. dilute sodium hydroxide solution
D. saliva

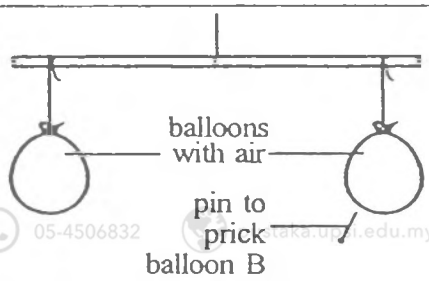
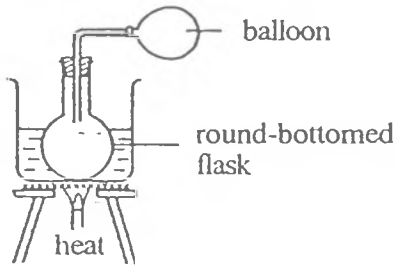
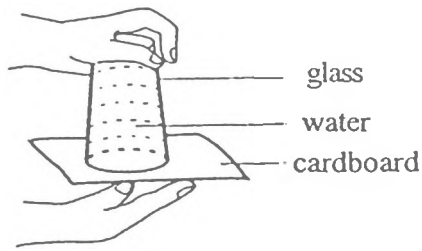
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Before air is released After air is released

18. The figure above shows the shape of a plastic bottle before and after some of the air in it is released. The observation after the air is released can be explained as

A. the air pressure inside and outside the bottle remains the same
B. the air pressure outside the bottle decreases
C. the air pressure inside the plastic bottle decreases
D. the air pressure outside and inside the bottle decreases

I.		Air has mass
II.		Air expands when heated
III.		Air exerts pressure

19. The apparatus above are used to study air pressure. Which of the apparatus is / are correctly matched ?

A. III only
B. I and III only
C. II and III only
D. I, II and III

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20. Appliances which use/s the same principle as a syringe include/s

I. a drinking straw
II. a spring balance
III. a siphon

A. I only
B. I and II only
C. I and III only
D. I, II and III

21. A tow-car is used to pull a lorry with a mass of 600 kg over a distance of 0.4 km in 5 minutes. Calculate the power used by the tow car?

A 7500 Watts
B. 8000 Watts
C. 8500 Watts
D. 9000 Watts

22. The figure below shows an animal with a certain type of support system.



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Select other animal/s that has/have the same support system.

I. Leech
II. Earthworm
III. Scorpion

A. II only
B. I and II only
C. II and III only
D. I, II and III

23. Why is a crocodile more stable than a giraffe?

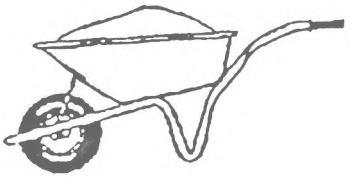
A. the crocodile is lighter than the giraffe
B. the crocodile's legs are longer than the giraffe's legs
C. the centre of gravity of the crocodile is lower than that of the giraffe's
D. the centre of gravity of the crocodile is higher than that of the giraffe's

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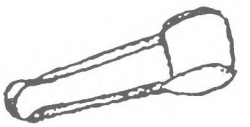
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• The load is positioned between the fulcrum and effort • A little effort can move a large load

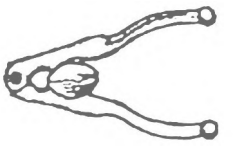
24. Which of the simple machine/s below has / have the characteristics listed above



I

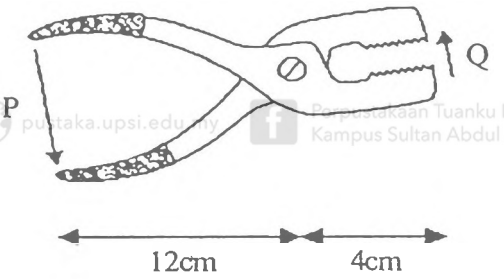


II



III

A. I only
B. I and II only
C. I and III only
D. I, II and III

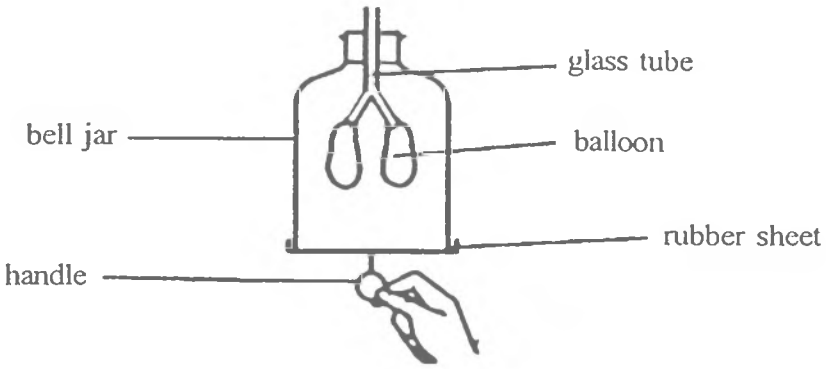


25. The figure above shows a pair of pliers. What are the **correct** forces for P and Q respectively ?

	P (N)	Q (N)
I	4	12
II	6	2
III	3	9

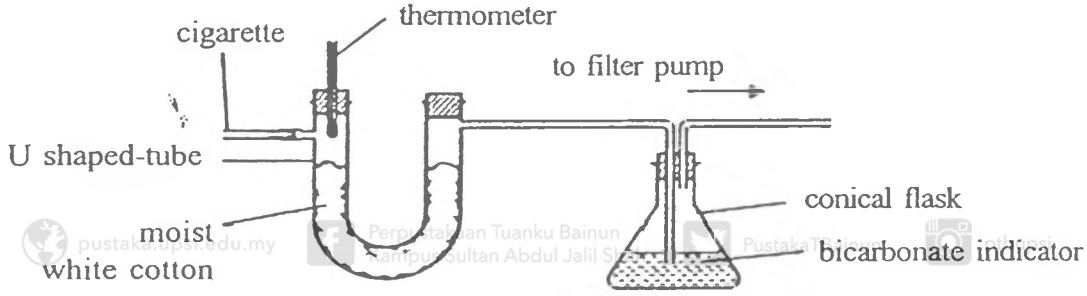
A. III only
B. I and II only
C. I and III only
D. I, II and III

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26. Figure above shows a model of human respiratory system. Which of the following statements is **not** true when the rubber sheet is pulled downwards?

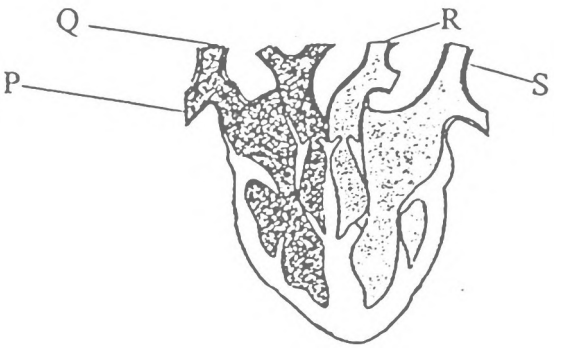
A. Both balloons expand.
B. Air enters into the balloons.
C. Pressure in the bell jar decreases.
D. Both balloons expand until they burst.



27. Figure above shows an experiment to study the effects of smoking on the lungs. What can be observed at the end of the experiment?

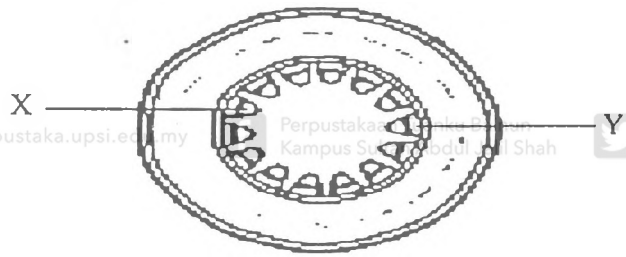
I. The moist white cotton turns brownish yellow.
II. The thermometer records a rise in temperature.
III. The colour of the bicarbonate indicator turns from red to yellow.

A. I and II only
B. I and III only
C. II and III only
D. I, II and III



28. Which of the following blood vessels carry deoxygenated blood from the body tissues and oxygenated blood to the body tissues

	Deoxygenated blood from body tissues	Oxygenated blood to body tissues
A.	P	Q
B.	P	R
C.	S	Q
D.	S	P



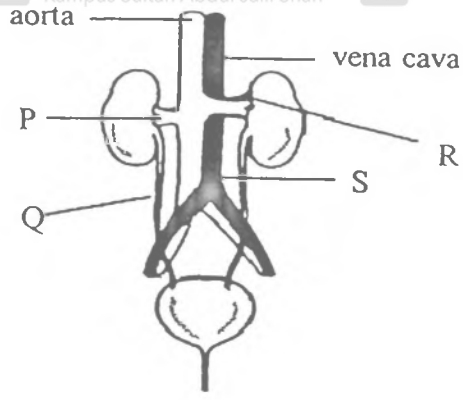
29 The figure above shows a cross-section of a dicotyledonous stem.
Which of the following is **correct**?

	X	Y
A.	Lies outside the phloem	Lies outside the xylem
B.	Transport manufactured food (glucose)from leaves to other parts of the plants	Transport water and minerals from root to leaves
C.	Supports the plant	Does not support the plant
D.	Transports water and minerals from root to leaves	Transports manufactured food (glucose) from leaves to other parts of the plants

30. A person with blood group AB can donate his blood to someone who has blood group

A. B only
B. AB only
C. A and B
D. A, B and AB

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31. Figure above shows human kidneys and the related blood vessels. Which of the blood vessels labelled P,Q, R and S carries blood into the kidneys?

A. P
B. Q
C. R
D. S

32. Apart from functioning as a sensory organ, the skin also functions to remove the following excretory substances **except**

A. urea
B. water
C. carbon dioxide
D. mineral salts

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33. The table below shows the parts of some plants that carry out vegetative reproduction

Plant	**Part of plant**
Potato	P
Lalang	Q
Yam	R

Which of the following are represented by P, Q, and R ?

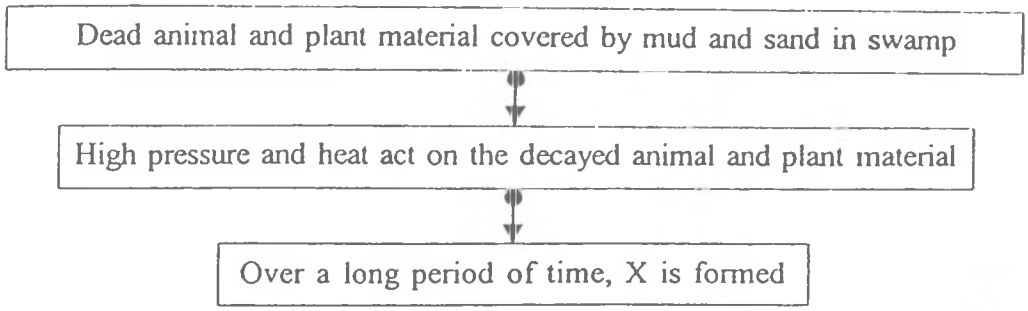
	P	Q	R
A.	Rhizome	Corm	Sucker
B.	Bulb	Leaf	Tuber
C.	Tuber	Rhizome	Corm
D.	Leaf	Tuber	Stem

34. What disease is caused by a deficiency in protein?

A. Beri-beri
B. Anaemia
C. Diarrhoea
D. Kwashiorkor

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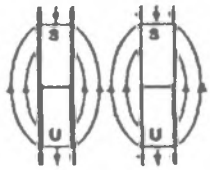
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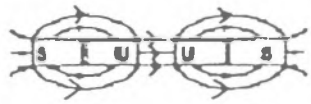


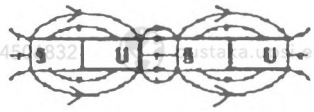
35. The above statements explain the formation of X. What is X?

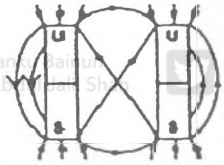
A. Natural gas
B. Petroleum
C. Wood
D. Charcoal

36. The diagrams below show patterns of magnetic field. Which of the following is **correct**?

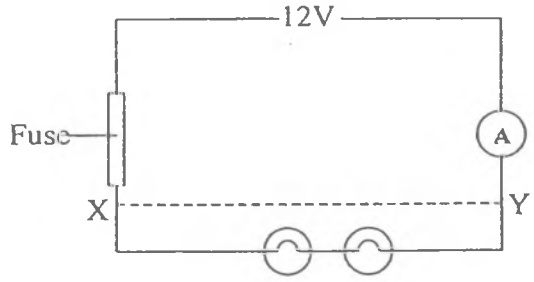
A. 

C. 

B. 

D. 

37. Figure shows a complete circuit.



What will happen if a copper wire is placed across points X and Y as shown in figure above?

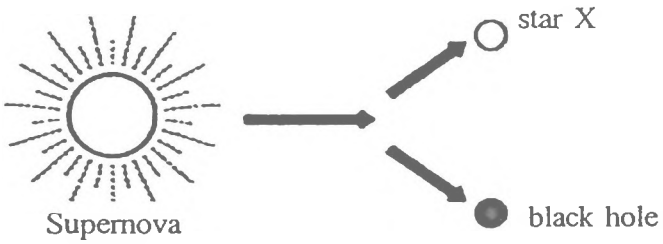
A. The fuse melt and breaks off
B. The bulb lights more brightly
C. The ammeter shows a high reading
D. The copper wire becomes hot and breaks off

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38. Four electric fans, each 100W, are used for five hours. If one kilowatt-hour of energy cost 25 cents, what is the cost of the electricity used?

A. RM5.00
B. RMI.25
C. RMI.00
D. RM0.50

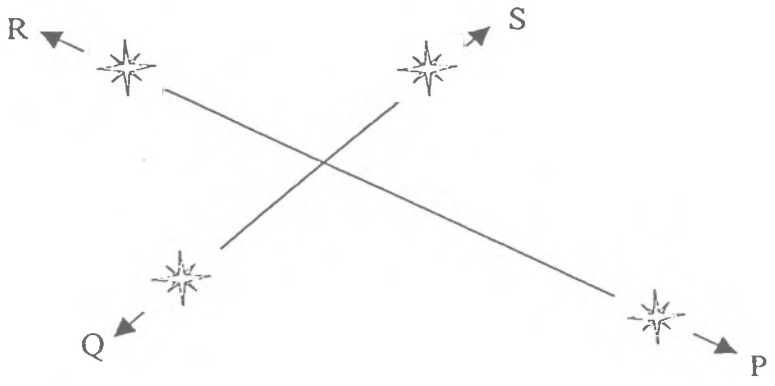


39. The figure above shows the changing of a star to become other objects after one stage. Which of the following is **true** about star X?

I. It spins and radiates radio waves in the form of pulses.
II. It cools and leaves a black body.
III. The star's core contracts and becomes a white dwarf.

A. I only
B. III only
C. I and III only
D. I, II and III

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40. Of the directions P, Q, R, and S, which should a traveler follow if he wishes to go to the North pole?

A. P
B. Q
C. R
D. S

END OF QUESTION PAPER

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55/1
Sains
Kertas 1
Ogos
2005
1 jam

PEPERIKSAAN PERCUBAAN
PENILAIAN MENENGAH RENDAH
NEGERI PERAK
2005

SCIENCE
SAINS

Paper 1
Kertas 1

1 hour
Satu jam

DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO
JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *This paper is bilingual.*
   Kertas soalan ini disediakan dalam dwibahasa.

2. *Question on the right page is the translation in Bahasa Melayu of the question in English on the left page.*
   Soalan di halaman kanan adalah terjemahan dalam Bahasa Melayu soalan Bahasa Inggeris di halaman kiri.

3. *Candidate is required to read the information on page 2 or page 3.*
   Calon dikehendaki membaca maklumat di halaman 2 atau halaman 3.

Kertas soalan ini mengandungi 31 halaman bercetak 1 halaman tidak bercetak.

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ARAHAN UNTUK CALON

1. *Kertas soalan mengandungi 40 soalan.*

2. *Jawab* **semua** *soalan.*

3. *Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan.*

4. *Hitamkan satu ruangan sahaja bagi setiap soalan.*

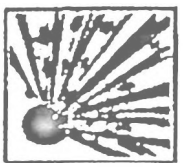
5. *Sekiranya anda hendak menukarkan jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.*

6. *Anda dibenarkan menggunakan kalkulator saintifik yang* **tidak** *boleh diprogram.*

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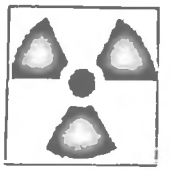
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1. Manakah di antara label-label di bawah dapat dilihat pada botol racun paraquat.

A. 

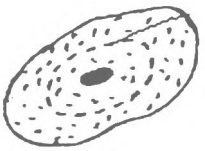
C. 

B. 

D. 

2. Antara berikut, yang manakah **bukan** langkah yang betul dalam mengendalikan sebuah mikroskop?

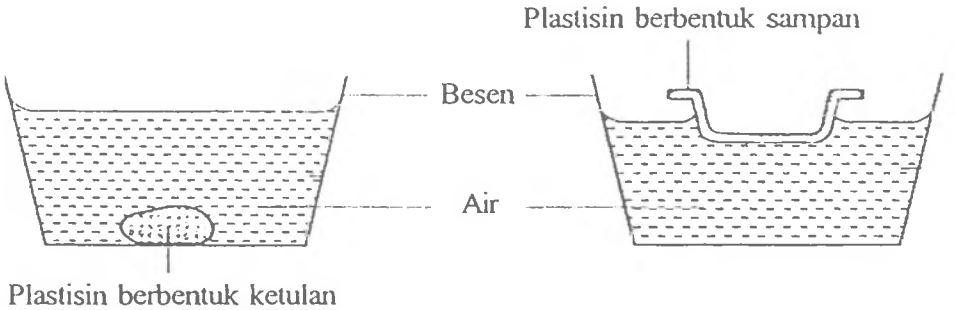
A. Klipkan slaid di atas pentas
B. Tempatkan mikroskop di atas permukaan yang rata
C. Laraskan pelaras fokus halus sebelum melaras pelaras fokus kasar
D. Laraskan cermin supaya cahaya yang secukupnya memasuki mikroskop



3. Rajah di atas menunjukkan struktur sel tertentu. Sel tersebut **tidak** mempunyai

I. vakuol
II. dinding sel
III. kloroplas

A. I sahaja
B. I dan II sahaja
C. II dan III sahaja
D. I, II, dan III



4. Dua bentuk plastisin dengan jisim yang sama digunakan dalam aktiviti di atas. Mengapakah plastisin berbentuk sampan terapung di atas permukaan air ?

A. Plastisin berbentuk sampan lebih besar dari plastisin berbentuk ketulan.
B. Plastisin berbentuk sampan mempunyai ketumpatan lebih tinggi dari plastisin berbentuk ketulan.
C. Plastisin berbentuk sampan mempunyai isipadu lebih kecil yang menyebabkan ketumpatannya kurang dari ketumpatan air.
D. Plastisin berbentuk sampan mempunyai isipadu lebih besar yang menyebabkan ketumpatannya lebih tinggi dari ketumpatan air.

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- Tidak mempunyai bentuk yang tetap.
- Mengikut bentuk bekas yang menempatinya
- Zarah-zarahnya bergerak secara rawak.

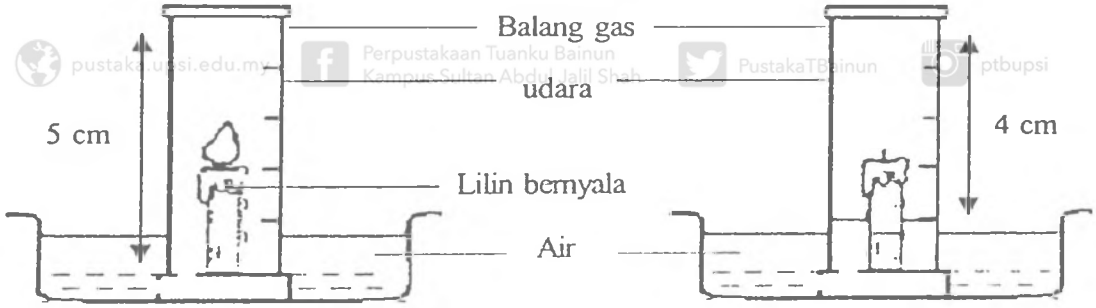
5. Namakan bentuk jirim yang mempunyai ciri-ciri di atas

I. Cecair
II. Pepejal
III. Gas

A. I sahaja
B. I dan II sahaja
C. II dan III sahaja
D. I, II dan III

6.. Antara proses-proses yang berikut, yang manakah **tidak** memerlukan oksigen?

A. Pengaratan
B. Pembakaran
C. Respirasi
D. Fotosintesis



7. Rajah menunjukkan aktiviti untuk menentukan peratus oksigen di udara. Berikut adalah data yang diperolehi dari aktiviti tersebut.

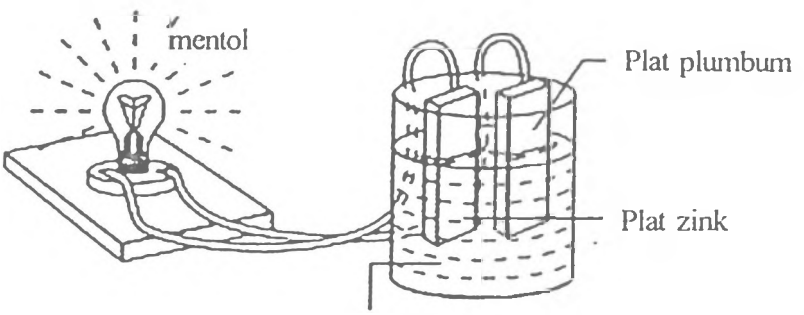
Tinggi turus udara di awal aktiviti = x cm
Tinggi turus udara di akhir aktiviti = y cm
Perbezaan ketinggian turus udara = (x – y) cm
Peratus oksigen dalam udara = $\frac{(x - y)\ cm}{x\ cm} \times 100\%$

Menggunakan data dari aktiviti di atas, hitungkan peratus oksigen dalam udara.

A. 20 %
B. 30 %
C. 45 %
D. 50 %

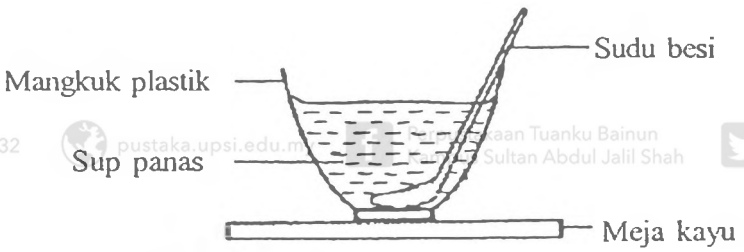
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8. Apakah perubahan-perubahan tenaga yang berlaku dalam sel ringkas di atas apabila mentol menyala?

A. Tenaga cahaya → tenaga nuklear → tenaga haba + tenaga kinetik
B. Tenaga kimia → tenaga elektrik → tenaga haba + tenaga cahaya
C. Tenaga keupayaan → tenaga kinetik → tenaga elektrik → tenaga kinetik
D. Tenaga kimia → tenaga elektrik → tenaga kinetik → tenaga keupayaan

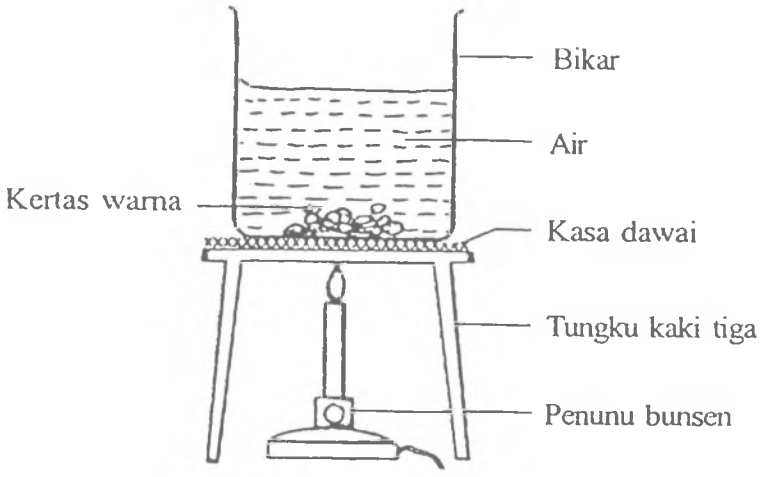


9. Dalam rajah di atas, haba dipindahkan dari sup panas ke persekitaran melalui

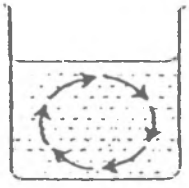
I. perolakan
II. konduksi
III. sinaran

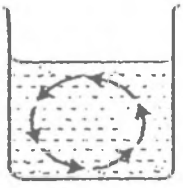
A. I, II dan III
B. I dan II sahaja
C. II dan III sahaja
D. I sahaja

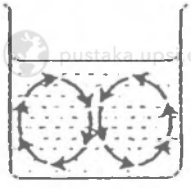
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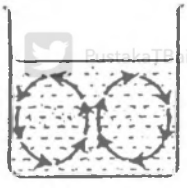


10. Rajah di atas menunjukkan beberapa kepingan kertas warna di dalam sebuah bikar beris air. Bikar ini kemudian dipanaskan menggunakan penunu Bunsen. Manakah diantara beriku menunjukkan pergerakan kepingan kertas dengan betul?

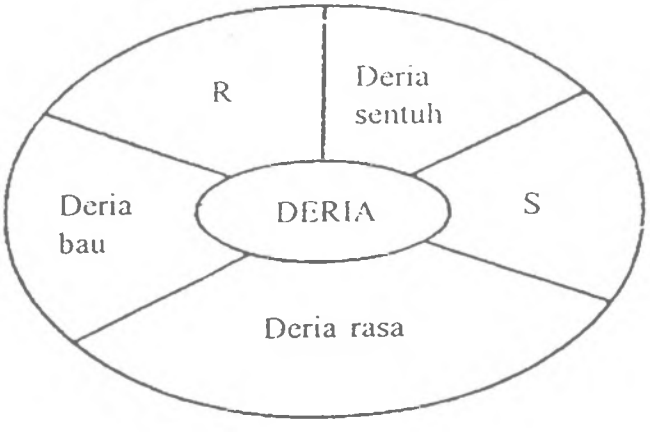
A. 

C. 

B. 

D. 

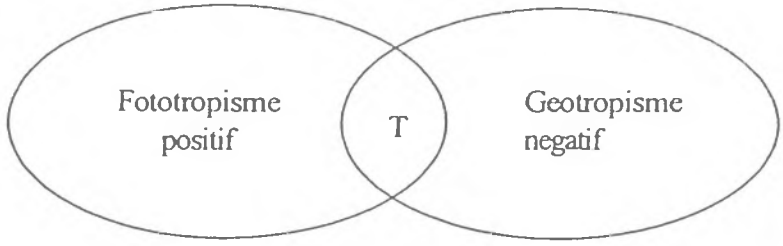
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11. Rajah di atas mewakili deria manusia.
Deria R dan S digunakan semasa

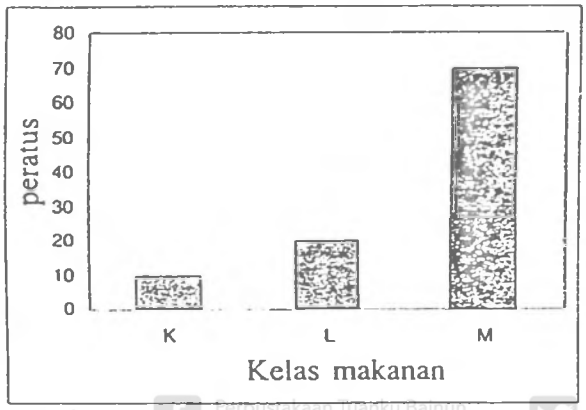
A. merasa masakan kari ayam
B. memilih buah durian yang baik
C. menonton wayang gambar
D. ibu memeluk bayinya

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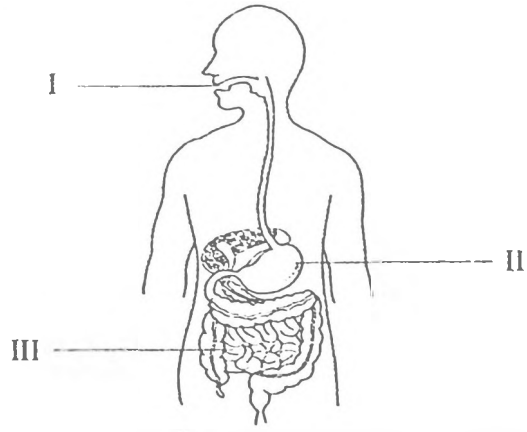
12. Berdasarkan rajah di atas, bahagian pokok manakah boleh diwakili oleh T ?

A. Buah
B. Akar
C. Pucuk
D. Batang



13. Graf bar di atas menunjukkan kelas-kelas makanan yang terdapat dalam roti. Apakah fungsi M?

A. Membaiki dan menggantikan tisu-tisu yang rosak.
B. Membekalkan tenaga untuk melakukan kerja.
C. Mencegah sembelit.
D. Membina tulang dan gigi yang kuat.



14. Rajah di atas menunjukkan sebahagian dari sistem pencernaan manusia.
Bahagian manakah yang mencernakan protein ?

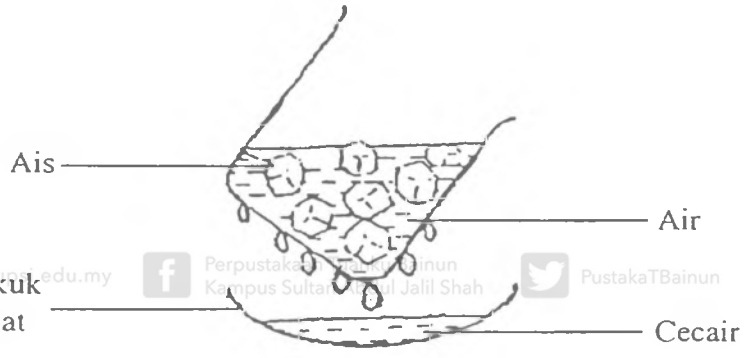
A. II sahaja
B. I dan II sahaja
C. II dan III sahaja
D. I, II dan III

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Jenis interaksi	Huraian ringkas
P	Satu organisma memburu dan menangkap organisma lain sebagai makanan.
Q	Satu hubungan antara dua organisma berlainan dimana kedua-dua mendapat faedah.

15. Jadual di atas menunjukkan satu huraian ringkas antara organisma hidup. Apakah interaksi yang mewakili P dan Q ?

	P	Q
A.	Parasitisme	Mutualisme
B.	Pemangsa-mangsa	Mutualisme
C.	Pemangsa-mangsa	Komensalisme
D.	Parasitisme	Persaingan



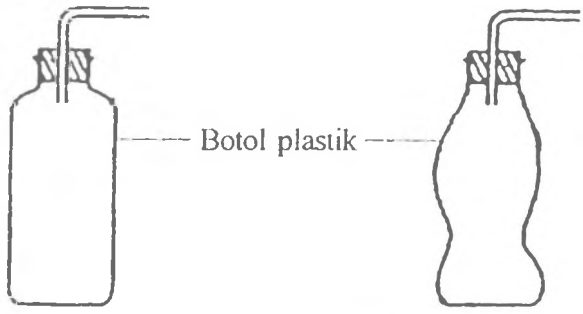
16. Rajah di atas menunjukkan satu aktiviti untuk mengkaji perubahan bentuk jirim. Antara proses berikut yang manakah sedang berlaku di dalam aktiviti tersebut?

A. peleburan
B. kondensasi
C. pembekuan dan peleburan
D. peleburan dan kondensasi

17. Leela disengat lebah. Bisanya bersifat alkali. Yang manakah antara berikut dapat menyembuhkan sengatan berikut?

A. air suling
B. jus limau
C. larutan natrium hidroksida cair
D. air liur

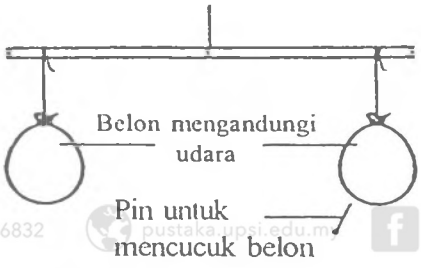
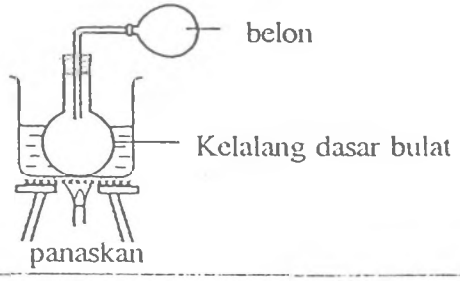
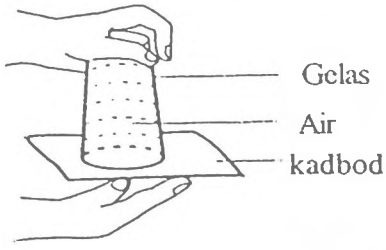
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Sebelum udara dikeluarkan Selepas udara dikeluarkan

18. Rajah di atas menunjukkan bentuk botol plastik sebelum dan selepas sebahagian udaranya dikeluarkan. Pemerhatian udara dikeluarkan boleh diterangkan sebagai

A. tekanan udara di dalam dan di luar botol plastik tetap sama
B. tekanan udara di luar botol plastik berkurangan
C. tekanan udara di luar botol plastik berkurangan
D. tekanan udara di dalam dan di luar botol plastik berkurangan

I.		Udara mempunyai jisim
II.		Udara mengembang bila dipanaskan
III.		Udara memberi tekanan

19. Peralatan di atas digunakan untuk mengkaji tekanan udara. Peralatan yang manakah dipadankan dengan betul?

A. III sahaja
B. I dan III sahaja
C. II dan III sahaja
D. I, II dan III

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20. Peralatan yang manakah mengunakan prinsip yang serupa dengan picagari

I. penyedut hidupan
II. neraca sprinh
III. sifon

A. I sahaja
B. I dan II sahaja
C. I dan III sahaja
D. I, II dan III

21. Sebuah kereta penunda menarik sebuah lori berjisim 600kg sejauh 0.4km selama 5 minit. Hitung kuasa yang digunakan oleh kereta penunda tersebut?

A. 7500 Watt
B. 8000 Watt
C. 8500 Watt
D. 9000 Watt

22. Rajah di bawah menunjukkan haiwan yang mempunyai sistem sokongan tertentu.



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Pilih haiwan lain yang mempunyai sistem sokongan dengan cara yang sama dengan organisma di atas.

I. Lintah
II. Cacing tanah
III. Kala jengking

A. II sahaja
B. I dan II sahaja
C. II dan III sahaja
D. I, II dan III

23. Mengapakah buaya lebih stabil berbanding zirafah?

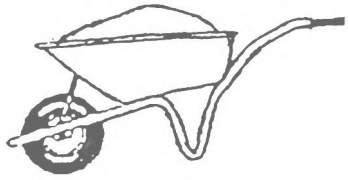
A. Buaya lebih ringan berbanding dengan zirafah
B. Kaki buaya lebih panjang berbanding kaki zirafah
C. Pusat graviti buaya lebih rendah dari pusat graviti zirafah
D. Pusat graviti buaya lebih tinggi dari pusat graviti zirafah

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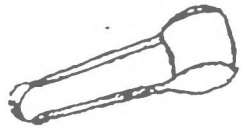
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- Beban terletak di antara fulkrum dan daya
- Daya yang kecil dapat menggerakkan beban yang besar

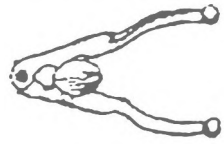
24. Manakah di antara mesin ringkas di bawah mempunyai ciri-ciri yang tersenarai di atas



I

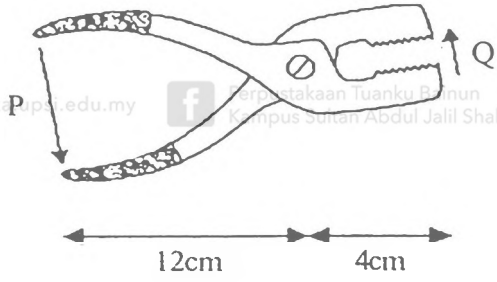


II



III

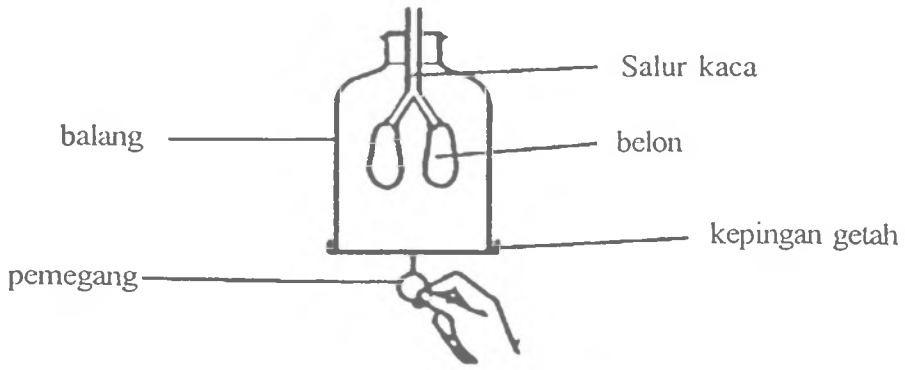
A. I sahaja
B. I dan II sahaja
C. I dan III sahaja
D. I, II dan III



25. Rajah di atas menunjukkan sepasang playar. Berdasarkan rajah di atas apakah daya yang **betul** bagi P dan Q masing-masing?

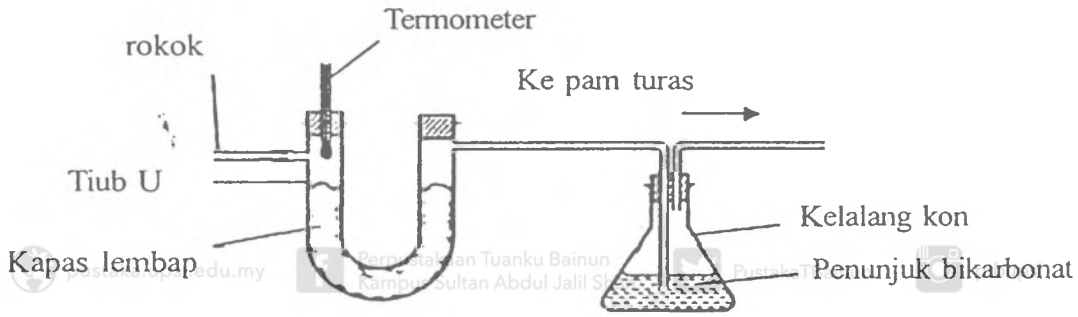
	P (N)	Q (N)
I	4	12
II	6	2
III	3	9

A. III sahaja
B. I dan II sahaja
C. I dan III sahaja
D. I, II dan III



26. Rajah di atas menunjukkan satu model system pernafasan manusia. Pernyataan yang manakah **tidak** benar apabila kepingan getah ditarik ke bawah?

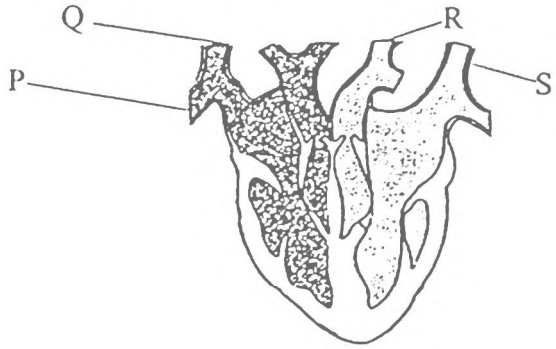
A. Kedua-dua belon mengembang.
B. Udara memasuki belon.
C. Tekanan didalam balang berkurangan.
D. Kedua-dua belon mengembang hingga pecah.



27. Rajah di atas menunjukkan satu eksperimen untuk mengkaji kesan merokok ke atas peparu. Apakah yang diperhatikan di akhir eksperiment?

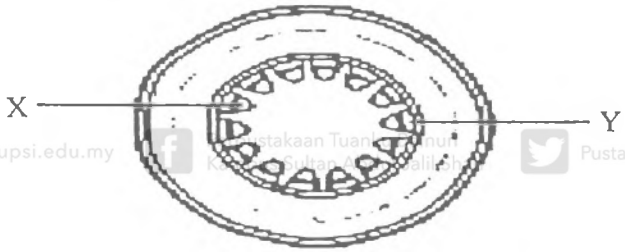
I. Kapas lembab bertukar warna menjadi coklat kuning.
II. Termometer mencatatkan peningkatan suhu.
III. Warna penunjuk bikarbonat bertukar dari merah ke kuning.

A. I dan II sahaja
B. I dan III sahaja
C. II dan III sahaja
D. I, II dan III



28. Salur darah yang manakah mengangkut darah terdeoksigen daripada tisu-tisu badan dan darah beroksigen kepada tisu-tisu badan.

	Darah terdeoksigen daripada tisu-tisu badan	Darah beroksigen kepada tisu-tisu badan
A.	P	Q
B.	P	R
C.	S	Q
D.	S	P



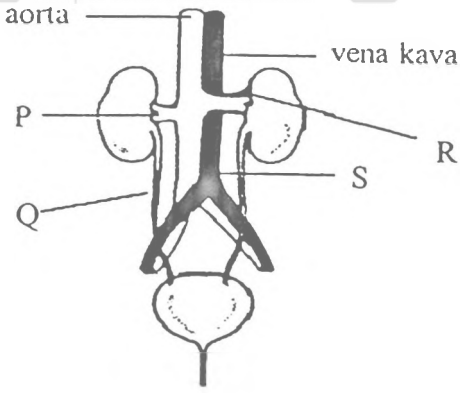
29. Rajah di atas menunjukkan keratan rentas batang dikotiledon.
Manakah antara berikut adalah **betul**?

	X	Y
A.	Terletak di bahagian luar floem	Terletak di luar xilem
B.	Mengangkut makanan (glukosa) dari daun ke bahagian lain tumbuhan	Menangkut air dan garam mineral dari akar ke daun
C.	Menyokong tumbuhan	Tidak menyokong tumbuhan
D.	Mengangkut air dan garam mineral dari akar ke daun	Mengangkut makanan (glukosa) dari daun ke bahagian lain tumbuhan

30. Seseorang yang mempunyai kumpulan darah AB boleh menderma darahnya kepada orang yang mempunyai kumpulan darah

A. B sahaja
B. AB sahaja
C. A dan B
D. A, B dan AB

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31. Rajah di atas menunjukkan ginjal manusia dan salur darah yang berkaitan. Manakah antara salur darah berlabel P, Q R dan S mengangkut darah ke dalam ginjal?

A. P
B. Q
C. R
D. S

32. Selain dari berfungsi sebagai organ deria, kulit juga berfungsi untuk membuang bahan-bahan berikut **kecuali**

A. urea
B. air
C. karbon dioksida
D. garam mineral

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33. Jadual di bawah menunjukkan bahagian tumbuhan yang menjalankan pembiakan secara vegetatif

Tumbuhan	Bahagian tumbuhan
Kentang	P
Lalang	Q
Keladi	R

Manakah antara berikut diwakili oleh P, Q, dan R ?

	P	Q	R
A.	Rizom	Umbisi	Anak pokok
B.	Bebawang	Daun	Tuber
C.	Tuber	Rizom	Umbisi
D.	Daun	Tuber	Stem

34. Apakah penyakit yang disebabkan oleh kekurangan protein?

A. Beri-beri
B. Anaemia
C. Cirit birit
D. Kwashiorkor

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Bahan-bahan dari haiwan dan tumbuhan mati diselaputi lumpur dan pasir di dalam paya

↓

Tekanan tinggi dan haba bertindak ke atas haiwan dan tumbuhan reput

↓

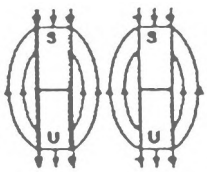
Selepas suatu jangka masa panjang, X dibentuk

35. Kenyataan di atas menerangkan pembentukan X. Apakah X?

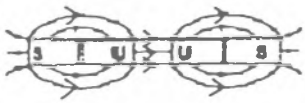
A. Gas asli
B. Petroleum
C. Kayu
D. Arang kayu

36 Rajah di bawah menunjukkan corak medan magnet. Manakah antara berikut adalah **betul**?

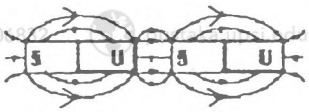
A.



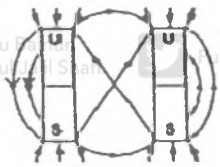
C.



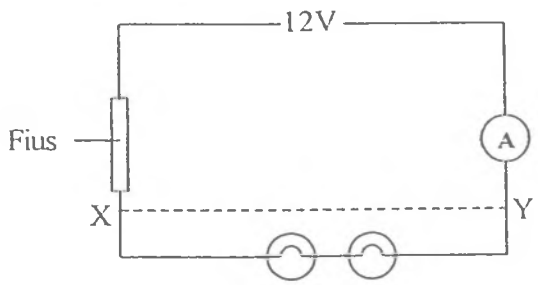
B.



D.



37. Rajah menunjukkan sebuah litar yang lengkap.



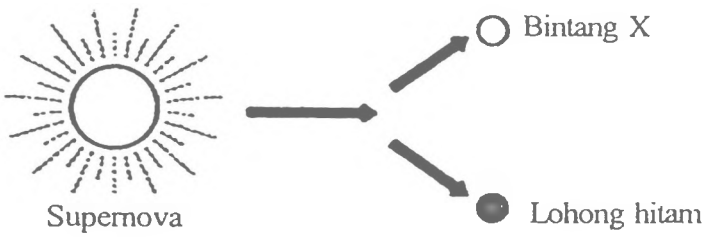
Apakah yang akan berlaku sekiranya satu dawai kuprum diletakkan merentas titik X dan Y seperti ditunjukkan pada rajah di atas?

A. Fius melebur dan terputus
B. Mentol-mentol menyala dengan lebih terang
C. Ammeter menunjukkan bacaan yang tinggi
D. Dawai kuprum menjadi panas dan terputus

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38. Empat kipas elektrik setiap satu 100W digunakan selama lima jam. Jika satu kilowattjam tenaga berharga 25 sen, berapakah kos elektrik yang digunakan

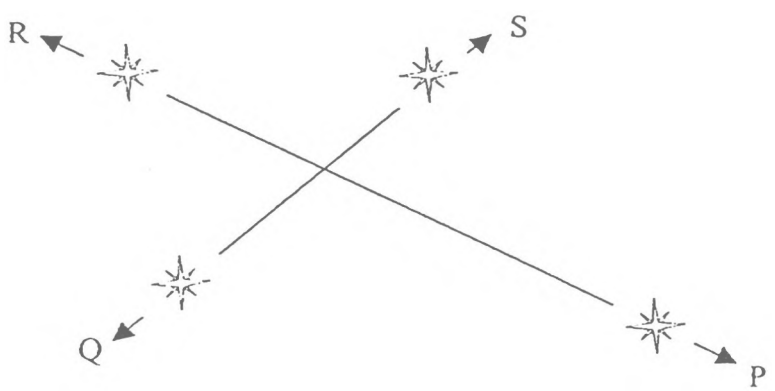
A. RM5.00
B. RM1.25
C. RM1.00
D. RM0.50



39. Rajah di atas menunjukkan transformasi sebutir bintang menjadi objek-objek lain selepas satu peringkat. Manakah antara berikut adalah **benar** mengenai bintang X.

I. Ia berpusing dan memancarkan gelombang radiasi radio dalam bentuk denyutan.
II. Ia menyejuk dan menghasilkan jasad hitam
III Teras bintang mengecut dan menjadi bentuk bintang putih kerdil

A. I sahaja
B. III sahaja
C. I dan III sahaja
D. I, II dan III



40. Antara arah P, Q, R, dan S, yang manakah perlu diikuti oleh seorang pengembara yang ingin mengembara ke kutub utara?

A. P
B. Q
C. R
D. S

KERTAS SOALAN TAMAT

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Institut Pengajian Siswazah

"Universalisme Profesionalisme Spiritualisme Intelektualisme"

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Rujukan Kami : UPSI/IPS-2/706.1.1
Tarikh : 27 Jun 2008

KEPADA SESIAPA YANG BERKENAAN

Tuan / Puan,

PENGESAHAN PELAJAR UNTUK MEMBUAT PENYELIDIKAN

Perkara di atas adalah dirujuk dengan segala hormatnya.

2. Adalah dimaklumkan pelajar sebagaimana nama dan nombor matrik seperti di bawah adalah pelajar Program Pengajian Siswazah , Universiti Pendidikan Sultan Idris (UPSI);

Nama Pelajar	:	**KRISHNASAMY A/L P.S. RAMASAMY**
No. Kad Pengenalan	:	**570520-08-6165**
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3. Sehubungan itu, pihak kami memohon jasa baik pihak tuan supaya dapat membenarkan pelajar tersebut membuat kajian serta penyelidikan di tempat tuan/puan bagi memenuhi pengajian beliau di UPSI.

Sekian, untuk makluman.

"PENDIDIKAN GEMILANG MENUJU WAWASAN"

Yang benar,

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