Instructions: This question paper consists of **50** questions. Answer **all** questions.
Arahan: *Kertas soalan ini mengandungi* **50** *soalan. Jawab* ***semua*** *soalan.*

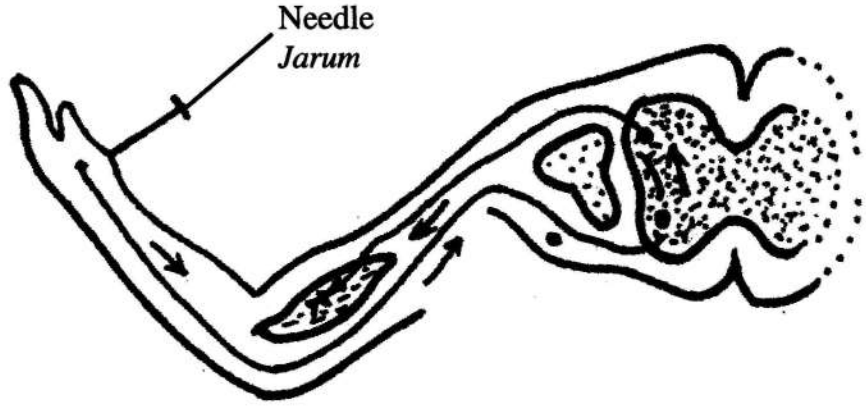
1 Diagram 1 shows basic neurone structure.
Rajah 1 *menunjukkan struktur asas neuron.*

Diagram 1
Rajah 1

What is the function of **Z**?
Apakah fungsi **Z***?*

A Controls impulses activities
Mengawal aktiviti impuls
B Speeds up the transmission of impulses
Mempercepat penghantaran impuls
C Conducts impulses away from the cell body
Mengalirkan impuls keluar dari badan sel
D Receives impulses and transmits them to the cell body
Menerima impuls dan membawanya ke badan sel

2 Diagram 2 shows the impulse pathway in a reflex arc.
Rajah 2 *menunjukkan laluan impuls dalam arka refleks.*



Key:
Petunjuk:
→ Direction of impulse
Arah impuls

Diagram 2
Rajah 2

Which impulse pathway is correct?
Laluan impuls manakah yang betul?

A Receptor *Reseptor* → Effector *Efektor* → Central nervous system *Sistem saraf pusat* → Response *Gerak balas*

B Receptor *Reseptor* → Central nervous system *Sistem saraf pusat* → Response *Gerak balas* → Effector *Efektor*

C Receptor *Reseptor* → Central nervous system *Sistem saraf pusat* → Effector *Efektor* → Response *Gerak balas*

D Receptor *Reseptor* → Response *Gerak balas* → Central nervous system *Sistem saraf pusat* → Effector *Efektor*

3 Diagram 3 shows the endocrine glands.
Which parts **A**, **B**, **C** or **D** is known as master gland?
Rajah 3 menunjukkan kelenjar endokrin.
Antara bahagian **A**, **B**, **C** *dan* **D**, *yang manakah dikenali sebagai kelenjar induk?*

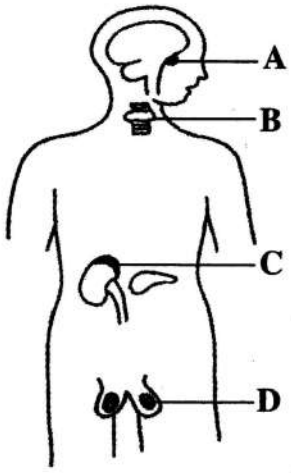


Diagram 3
Rajah 3

4 A lorry driver has been arrested by a policeman in a roadblock. He has been identified positive for drug in a urine screening test. He told the policeman that he did not sleep for two days.
What type of drug might be taken by the lorry driver?
Seorang pemandu lori telah ditahan oleh pegawai polis dalam satu sekatan jalan raya. Dia didapati positif dadah dalam ujian saringan air kencing. Dia memberitahu pegawai polis itu bahawa dia tidak tidur selama dua hari.
Apakah jenis dadah yang mungkin diambil oleh pemandu lori itu?

A Hallucinogens
Halusinogen
B Depressants
Depresen
C Stimulants
Stimulan
D Inhalants
Inhalan

5 Which of the following is the characteristic of mitosis?
Antara yang berikut, yang manakah ciri mitosis?

A Produces gametes
Menghasilkan gamet
B Occurs in somatic cells
Berlaku dalam sel soma
C Cell division occurs twice
Pembahagian sel berlaku dua kali
D Number of chromosomes in daughter cells is half of the parent cells
Bilangan kromosom dalam sel anak adalah separuh daripada sel induk

6 Diagram 4 shows a cross breeding of a trait.
Rajah 4 menunjukkan kacukan silang bagi satu trait.

Parents phenotype	:	Tall	Tall
Fenotip induk	:	*Tinggi*	*Tinggi*
Parents genotype	:		
Genotip induk	:	(Tt)	(Tt)

Genotype first generation (F_1) : (P) (Q) (R) (S)
Genotip generasi pertama (F_1) :

Diagram 4
Rajah 4

What is the expected genotype in the first generation?
Apakah jangkaan genotip pada generasi pertama?

	P	Q	R	S
A	Tt	Tt	Tt	Tt
B	TT	Tt	Tt	tt
C	TT	TT	Tt	Tt
D	Tt	Tt	tt	tt

7 Diagram 5 shows an individual who inherits a genetic disorder.
Rajah 5 menunjukkan seorang individu yang mewarisi suatu ketidakaturan genetik.

Diagram 5
Rajah 5

What is the genetic characteristic of that individual?
Apakah ciri genetik individu tersebut?

A Has sex chromosomes XO
Mempunyai kromosom seks XO
B Has sex chromosomes XY
Mempunyai kromosom seks XY
C Has sex chromosomes XXY
Mempunyai kromosom seks XXY
D Addition of one chromosome to the pair of 21st chromosome
*Penambahan satu kromosom pada pasangan kromosom ke-*21

8 A farmer suffered a loss when his cows died due to a disease. He wishes to improve the quality of his livestock.
What is the best method to get bigger size of cows with high resistance towards diseases?
Seorang penternak mengalami kerugian apabila lembunya mati disebabkan oleh suatu penyakit. Dia ingin meningkatkan kualiti ternakannya.
Apakah langkah yang terbaik untuk mendapatkan lembu yang bersaiz lebih besar dengan ketahanan yang tinggi terhadap penyakit?

A Feed high nutritional grass
Memberi makan rumput yang bernutrisi tinggi

B Give injection to resist diseases
Memberi suntikan untuk daya tahan terhadap penyakit

C Breed during selected season only
Membiak baka pada musim tertentu sahaja

D Crossbreed with the desired characteristics
Mengacukkan dengan ciri yang dikehendaki

9 Diagram 6 shows a graph of variation.
Rajah 6 menunjukkan suatu graf variasi.

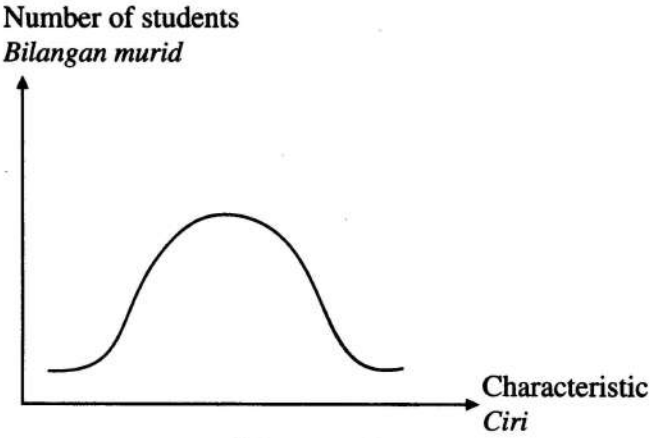


Diagram 6
Rajah 6

Which of the following statements is correct about the type of variation shown by the graph?
Antara pernyataan berikut, yang manakah betul tentang jenis variasi yang ditunjukkan oleh graf tersebut?

A The difference in trait is obvious
Perbezaan sifat adalah jelas

B Affected by environmental factor
Dipengaruhi oleh faktor persekitaran

C Have permanent trait
Mempunyai sifat yang kekal

D Can be inherited
Dapat diwarisi

10 The following information shows physical change of a substance.
Maklum a berikut menunjukkan perubahan fizik suatu bahan.

Solid iodine / *Pepejal iodin* —Process X / *Proses* X→ Iodine gas / *Gas iodin*

What is process X?
Apakah proses X*?*

A Sublimation / *Pemejalwapan*
B Condensation / *Kondensasi*
C Freezing / *Pembekuan*
D Melting / *Peleburan*

11 Table 1 shows the number of protons and neutrons for atoms P, Q, R and S.
Jadual 1 menunjukkan bilangan proton dan bilangan neutron bagi atom P, Q, R *dan* S.

Atom *Atom*	**Number of proton** *Bilangan proton*	**Number of neutron** *Bilangan neutron*
P	8	8
Q	8	9
R	7	10
S	9	10

Table 1
Jadual 1

Which atoms are isotopes?
Atom manakah merupakan isotop?

A P and Q / P *dan* Q
B P and S / P *dan* S
C Q and R / Q *dan* R
D R and S / R *dan* S

12 Which statement describes the elements in the Periodic Table of Elements?
Pernyataan manakah yang menerangkan unsur-unsur dalam Jadual Berkala Unsur?

A Horizontal rows are called group
Baris mengufuk dinamakan kumpulan

B Elements in the same period have similar chemical properties
Unsur-unsur dalam kala yang sama mempunyai sifat kimia yang sama

C Elements are arranged according to increasing proton number
Unsur-unsur disusun mengikut pertambahan nombor proton

D Non-metal elements are located in group 1 and group 2
Unsur-unsur bukan logam terletak dalam kumpulan 1 *dan kumpulan* 2

13 An experiment is carried out to study the malleability of two materials, **K** and **L**. Table 2 shows the result of the experiment.
Satu eksperimen telah dijalankan untuk mengkaji kebolehtempaan dua jenis bahan, **K** *dan* **L**. *Jadual 2 menunjukkan keputusan eksperimen itu.*

Material ***Bahan***	**Malleability** ***Kebolehtempaan***
K	Malleable *Boleh ditempa*
L	Non-malleable *Tidak boleh ditempa*

Table 2
Jadual 2

What are **K** and **L**?
Apakah **K** *dan* **L**?

	K	**L**
A	Zinc *Zink*	Sulphur *Sulfur*
B	Sulphur *Sulfur*	Carbon *Karbon*
C	Carbon *Karbon*	Copper *Kuprum*
D	Copper *Kuprum*	Zinc *Zink*

14 Diagram 7 shows a chemical reaction.
Rajah 7 menunjukkan suatu tindak balas kimia.

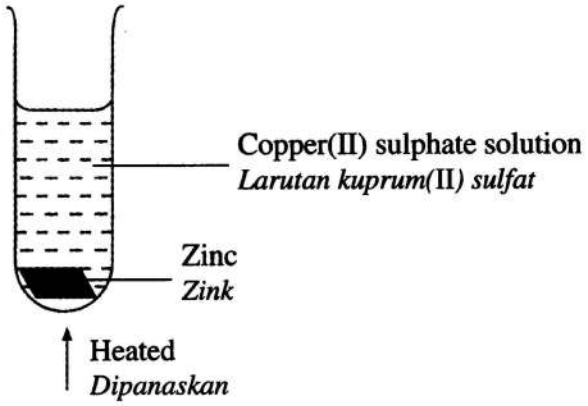


Diagram 7
Rajah 7

Which of the following is correct about the reaction?
Antara yang berikut, yang manakah betul tentang tindak balas tersebut?

A Reversible reaction
Tindak balas berbalik
B New substances are produced
Bahan baharu terhasil
C Less energy is required
Sedikit tenaga yang diperlukan
D Chemical properties of the substance remain unchanged
Sifat kimia bahan tidak berubah

15 Diagram 8 shows the position of metal Y in the reactivity series of metals.
Rajah 8 menunjukkan kedudukan logam Y *dalam siri kereaktifan logam.*

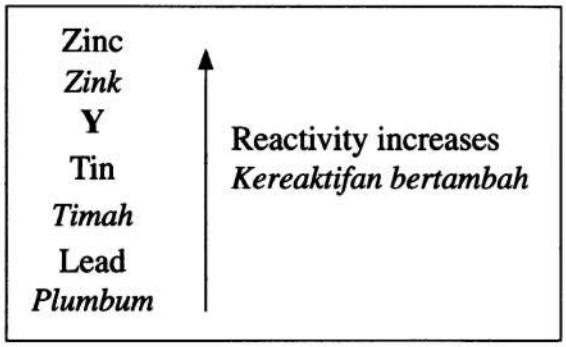


Diagram 8
Rajah 8

What is metal **Y**?
Apakah logam **Y**?
A Ferum
Besi
B Copper
Kuprum
C Calcium
Kalsium
D Aluminium
Aluminium

16 Which statement describes an exothermic reaction?
Pernyataan manakah menerangkan tindak balas eksotermik?
A No new substance formed
Tiada bahan baharu terhasil
B All reactions are irreversible
Semua tindak balas adalah tidak berbalik
C Surrounding temperature decreases
Suhu persekitaran menurun
D Heat energy is released
Tenaga haba dibebaskan

17 Diagram 9 shows the apparatus set-up for purifying metals.
Rajah 9 menunjukkan susunan radas untuk menulenkan logam.

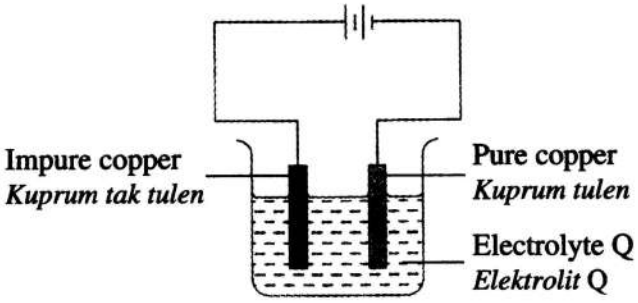


Diagram 9
Rajah 9

What is **Q**?
Apakah **Q***?*

A Copper(II) sulphate solution
Larutan kuprum(II) *sulfat*
B Sodium hydroxide solution
Larutan natrium hidroksida
C Dilute hydrochloric acid
Asid hidroklorik cair
D Dilute sulphuric acid
Asid sulfurik cair

18 Which of the following batteries is rechargeable?
Antara bateri berikut, yang manakah boleh dicas semula?

A Mercury(II) oxide battery
Bateri merkuri(II) *oksida*
B Nickel-cadmium battery
Bateri nikel-kadmium
C Alkaline battery
Bateri alkali
D Dry cell
Sel kering

19 Which radioactive substance is used to generate electrical energy?
Bahan radioaktif manakah yang digunakan untuk menjana tenaga elektrik?

A Carbon-14
Karbon-14
B Iodine-131
Iodin-131
C Uranium-235
Uranium-235
D Phosphorus-32
Fosforus-32

20 The following information shows the characteristics of a radioactive radiation.
Maklumat berikut menunjukkan ciri-ciri bagi suatu sinaran radioaktif.

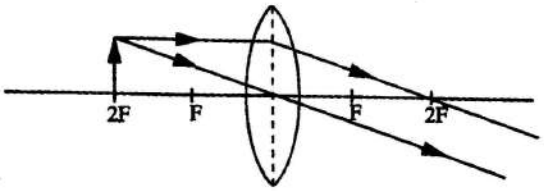
- Strong ionising power
  Kuasa pengionan yang kuat
- Low speed
  Halaju rendah
- Deflected by electric field
  Dipesongkan oleh medan elektrik

What is the radioactive radiation?
Apakah sinaran radioaktif itu?

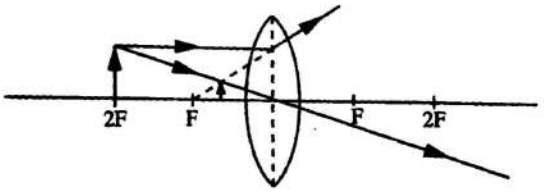
A X-ray
Sinar-X
B Gamma
Gama
C Beta
Beta
D Alpha
Alfa

21 Which of the following shows the correct image formation?
Antara berikut, yang manakah menunjukkan pembentukan imej yang betul?

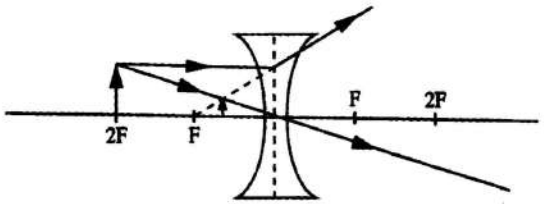
A



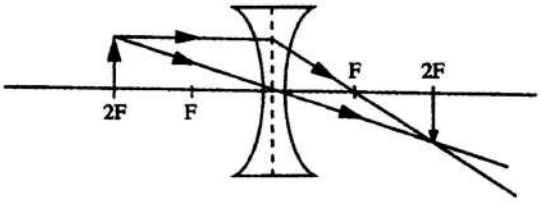
B



C



D



22 Diagram 10 shows an organ.
Rajah 10 *menunjukkan suatu organ.*

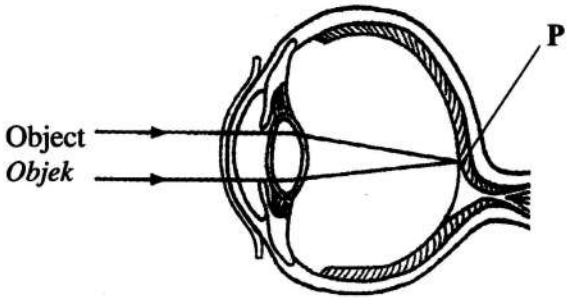


Diagram 10
Rajah 10

Which of the following is the characteristic of an image formed at **P**?
Antara yang berikut, yang manakah ciri suatu imej yang terbentuk di **P***?*

A Virtual
Maya
B Inverted
Songsang
C Literally inverted
Songsang sisi
D Bigger than object
Lebih besar dari objek

23 Diagram 11 shows a green light is passing through two coloured filters.
Rajah 11 *menunjukkan cahaya hijau melepasi dua turas warna.*

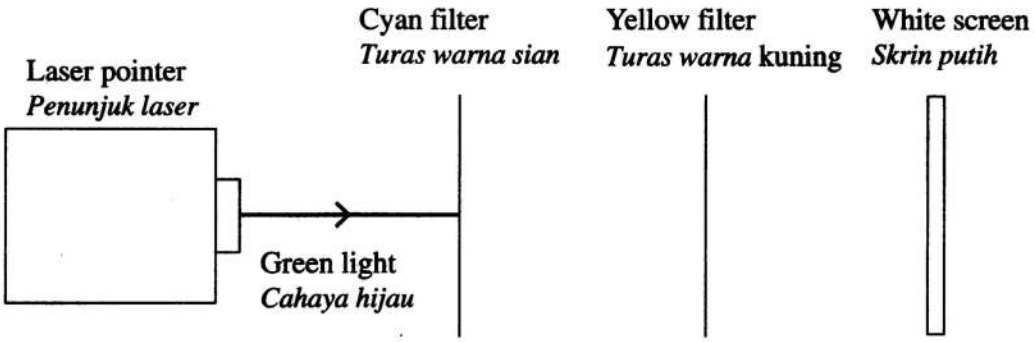


Diagram 11
Rajah 11

What is the colour of the light seen on the white screen?
Apakah warna cahaya yang kelihatan pada skrin putih?

A Cyan
Sian
B Blue
Biru
C Green
Hijau
D Yellow
Kuning

24 Study the information below.
Kaji maklumat di bawah.

> On 31st January 2018, Malaysians have the opportunity to witness the Super Blue Blood Moon phenomenon which was last observed on 31st March 1866. Malaysians are welcomed to take part in the observation of the eclipse at the Planetarium Negara.
> *Pada* 31 *Januari* 2018, *rakyat Malaysia berpeluang menyaksikan fenomena Gerhana Bulan Biru Berdarah yang kali terakhir dilihat pada* 31 *Mac* 1866. *Rakyat Malaysia dialu-alukan untuk mengambil bahagian dalam pencerapan gerhana itu di Planetarium Negara.*

Which of the following optical instruments can be used to observe this phenomenon?
Antara alatan optik berikut, yang manakah boleh digunakan untuk memerhati fenomena ini?

A Periscope
Periskop
B Telescope
Teleskop
C Kaleidoscope
Kaleidoskop
D Microscope
Mikroskop

25 What are the elements that form duralumin alloy?
Apakah unsur-unsur yang membentuk aloi duralumin?

A Copper and tin
Kuprum dan timah

B Copper and zinc
Kuprum dan zink

C Tin, antimony and copper
Timah, antimoni dan kuprum

D Aluminium, copper, magnesium and manganese
Aluminium, kuprum, magnesium dan mangan

26 The following information shows the uses of substance **X**.
Maklumat berikut menunjukkan kegunaan bahan **X**.

- To make nitric acid
  Untuk membuat asid nitrik
- To make fertiliser
  Untuk membuat baja

What is **X**?
Apakah **X**?

A Ester
Ester

B Sulphur
Sulfur

C Ammonia
Ammonia

D Phosphorus
Fosforus

27 Diagram 12 shows a type of microorganism.
Rajah 12 *menunjukkan sejenis mikroorganisma.*

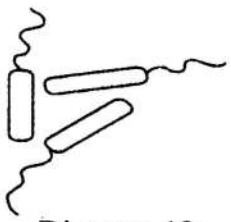


Diagram 12
Rajah 12

What is the type of the microorganism?
Apakah jenis mikroorganisma itu?

A Bacteria
Bakteria

B Protozoa
Protozoa

C Virus
Virus

D Fungi
Kulat

28 Which of the following pH values allows the microorganisms to grow rapidly?
Antara nilai pH *berikut, yang manakah membolehkan mikroorganisma membiak dengan cepat?*

A pH 2
B pH 4
C pH 7
D pH 9

29 Diagram 13 shows the process of producing alcohol.
Rajah 13 *menunjukkan proses penghasilan alkohol.*

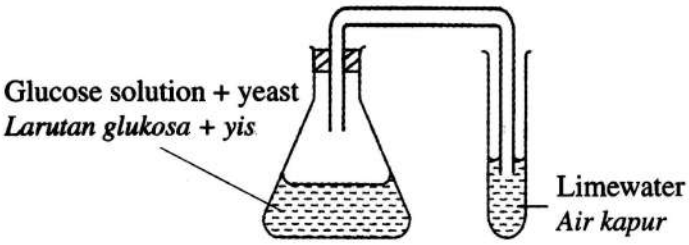


Diagram 13
Rajah 13

What is the process?
Apakah proses itu?

A Distillation
Penyulingan

B Fermentation
Penapaian

C Decomposition
Penguraian

D Crystallisation
Penghabluran

30 The following symptoms are identified in an individual.
Gejala-gejala berikut dikenal pasti pada seorang individu.

- Fever
  Demam
- Shivering periodically
  Menggigil secara berkala
- Suffer from anaemia
  Mengalami anemia
- Dark yellow coloured urine
  Air kencing berwarna kuning gelap

Which way can this disease spread?
Cara yang manakah penyakit ini boleh tersebar?

A Through air
Melalui udara

B Through mosquito bites
Melalui gigitan nyamuk

C Sharing towel and clothing
Berkongsi tuala dan pakaian

D Eat uncovered food
Makan makanan yang tidak bertutup

31 A boy is admitted to a hospital because of dengue fever. The doctor just infuses normal saline into his vein without any antibiotic.
Antibiotic was not given to the boy because antibiotic
Seorang budak lelaki dimasukkan ke hospital kerana demam denggi. Doktor hanya memasukkan air garam ke dalam venanya tanpa sebarang antibiotik.
Antibiotik tidak diberikan kepada budak lelaki itu kerana antibiotik

A is effective on bacteria and fungi infection only.
berkesan pada jangkitan akibat bakteria dan kulat sahaja.

B contains drug which is harmful to the health.
mengandungi dadah yang berbahaya kepada kesihatan.

C is applied to skin treatment only.
digunakan untuk merawat penyakit kulit sahaja.

D can weaken the immune system.
boleh melemahkan sistem keimunan.

32 Diagram 14 shows a part of nitrogen cycle.
Rajah 14 *menunjukkan sebahagian daripada kitaran nitrogen.*

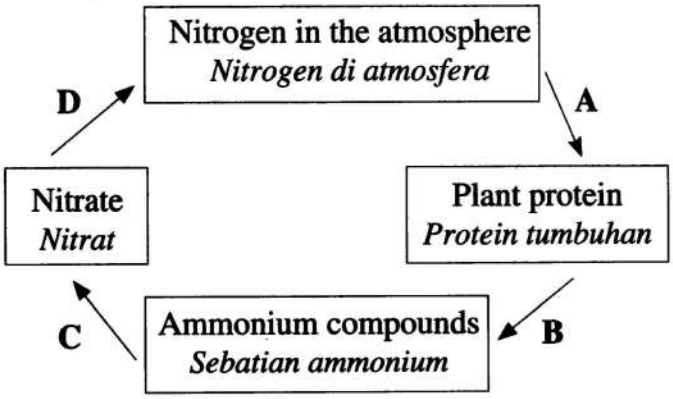


Diagram 14
Rajah 14

Which of the following **A**, **B**, **C** or **D** involves decaying bacteria?
Antara **A**, **B**, **C** *dan* **D**, *yang manakah melibatkan bakteria pereputan?*

33 Which element is classified as a micronutrient?
Unsur yang manakah dikelaskan sebagai mikronutrien?

A Calcium
Kalsium

B Carbon
Karbon

C Boron
Boron

D Magnesium
Magnesium

34 Table 3 shows the readings of the Air Pollutant Index (API) of three places.
Jadual 3 *menunjukkan bacaan Indeks Pencemar Udara* (IPU) *bagi tiga tempat.*

Place *Tempat*	**API Reading** *Bacaan* **IPU**	**Status** *Status*
Shah Alam	223	Very unhealthy *Sangat tidak sihat*
Pelabuhan Klang	211	Very unhealthy *Sangat tidak sihat*
Batu Muda	210	Very unhealthy *Sangat tidak sihat*

Recorded at 7 a.m. on 27th September 2015
Direkodkan pada jam 7 pagi, 27 September 2015
Table 3
Jadual 3

Based on the information, what is the long-term effect of air pollution to human beings?
Berdasarkan maklumat itu, apakah kesan jangka masa panjang pencemaran udara kepada manusia?

A Blurry vision
Penglihatan kabur

B Skin problem
Masalah kulit

C Lung disease
Penyakit peparu

D Flu
Selesema

35 Which of the following methods is the best to conserve the environment?
Antara kaedah berikut, yang manakah kaedah terbaik untuk memulihara alam sekitar?

A Biological control
Kawalan biologi

B The use of pesticides
Penggunaan pestisid

C Dumping of sewage
Pembuangan air kumbahan

D The use of chemical fertilisers
Penggunaan baja kimia

36 What step should be taken to ensure that the sea aquatic life is not affected?
Apakah langkah yang perlu diambil untuk memastikan hidupan akuatik laut tidak terjejas?

A Use dragnet to catch fish
Menggunakan pukat tunda untuk menangkap ikan

B Increase the number of artificial reefs
Menambah bilangan tukun tiruan

C Dispose the sewage water into the sea
Membuang air kumbahan ke dalam laut

D Cut down mangrove trees
Menebang pokok bakau

37 Diagram 15 shows a type of food.
Rajah 15 menunjukkan sejenis makanan.

Diagram 15
Rajah 15

What is the effect of consuming the product excessively?
Apakah kesan pengambilan produk tersebut secara berlebihan?

A Diabetes
Diabetes
B Kwashiorkor
Kwasyiorkor
C Arteriosclerosis
Arteriosklerosis
D Stomach ulcer
Ulser perut

38 Which of the following is an example of inorganic compound?
Antara yang berikut, yang manakah contoh sebatian bukan organik?

A

C

B

D

39 The following information shows a part of the palm oil extraction process.
Maklumat berikut menunjukkan sebahagian daripada proses pengekstrakan minyak kelapa sawit.

S –Fruits are removed from the bunches
Buah dipisahkan daripada tandannya
T – Fruits are separated into husk and seed
Buah dipisahkan kepada sabut dan biji buah

What are the processes, **S** and **T**?
Apakah proses **S** *dan proses* **T***?*

	S	T
A	Sterilisation *Pensterilan*	Threshing *Penanggalan*
B	Extraction *Pengekstrakan*	Purification *Penulenan*
C	Threshing *Penanggalan*	Digestion *Pencernaan*
D	Digestion *Pencernaan*	Sterilisation *Pensterilan*

40 Diagram 16 shows the process of latex coagulation.
Rajah 16 menunjukkan proses penggumpalan lateks.

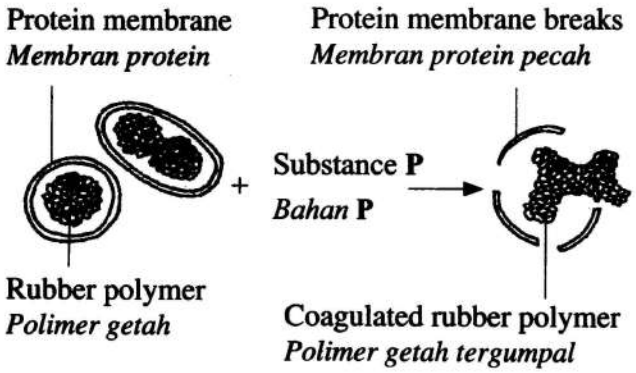


Diagram 16
Rajah 16

What is substance **P**?
Apakah bahan **P***?*

A Sulphur
Sulfur
B Ethanol
Etanol
C Ammonia
Ammonia
D Formic acid
Asid formik

41 Diagram 17 shows a ticker tape of a moving trolley.
Rajah 17 menunjukkan pita detik bagi suatu troli yang sedang bergerak.

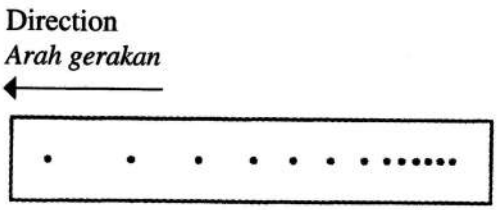


Diagram 17
Rajah 17

What is the type of movement shown by the ticker tape?
Apakah jenis gerakan yang ditunjukkan oleh pita detik tersebut?

A Constant velocity
Halaju seragam
B Zero acceleration
Pecutan sifar
C Uniform acceleration
Pecutan seragam
D Uniform deceleration
Nyahpecutan seragam

42 Diagram 18 shows two football players who are practising in a football field. Both players kick the balls with the mass of 0.45 kg each and the balls move at different velocity.
Rajah 18 menunjukkan dua orang pemain bola sepak sedang berlatih di padang bola sepak. Kedua-dua pemain bola itu menyepak bola masing-masing yang berjisim 0.45 kg dan bola-bola itu bergerak dengan halaju berbeza.

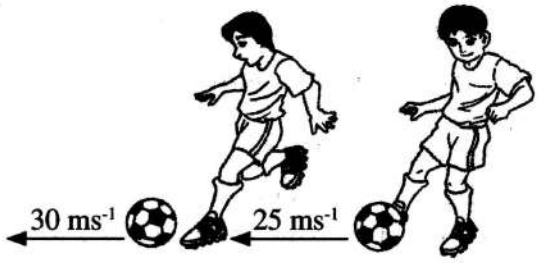


Diagram 18
Rajah 18

What is the different of momentum between these two balls?
[Momentum = Mass × Velocity]
Berapakah perbezaan momentum bagi dua bola itu?
[*Momentum = Jisim × Halaju*]

A 2.25 kg m s^{-1}
B 11.25 kg m s^{-1}
C 13.50 kg m s^{-1}
D 24.75 kg m s^{-1}

43 Diagram 19 shows two aeroplanes of different sizes landing at different runways.
Rajah 19 menunjukkan dua buah kapal terbang yang berlainan saiz mendarat di atas landasan berbeza.

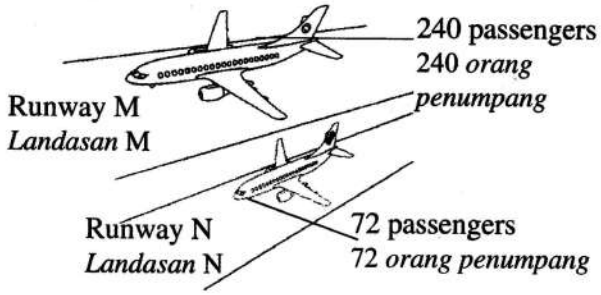


Diagram 19
Rajah 19

The length of runway M should be longer than runway N because it will
Landasan M perlu lebih panjang daripada landasan N kerana ia akan

A increase the momentum effect.
menambahkan kesan momentum.
B reduce the inertia effect.
mengurangkan kesan inersia.
C reduce the pressure.
mengurangkan tekanan.
D increase the acceleration.
menambahkan pecutan.

44 Diagram 20 shows a 2 kg block which is placed on a plane.
Rajah 20 menunjukkan sebuah blok berjisim 2 kg diletakkan atas suatu satah.

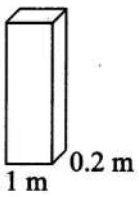


Diagram 20
Rajah 20

What is the pressure exerted by the block?
[Gravity = 10 ms^{-2}]
[Force = Mass × Gravity]

$$\left[\text{Pressure} = \frac{\text{Force}}{\text{Area}}\right]$$

Berapakah tekanan yang dikenakan oleh blok itu? [*Graviti* = 10 ms^{-2}]
[*Daya = Jisim × Graviti*]

$$\left[\textit{Tekanan} = \frac{\textit{Daya}}{\textit{Luas}}\right]$$

A 0.2 N m^{-2}
B 4.0 N m^{-2}
C 20 N m^{-2}
D 100 N m^{-2}

45 What is the suitable shape of a vehicle on water?
Apakah bentuk yang sesuai bagi kenderaan di atas air?

A Sphere
Sfera

B Aerofoil
Aerofoil

C Streamline
Larus

D Aerodynamic
Aerodinamik

46 What is the contribution of technology in the food production to improve life?
Apakah sumbangan teknologi dalam pengeluaran makanan untuk meningkatkan kesejahteraan hidup?

A Increase the quantity of food produced
Meningkatkan kuantiti makanan yang dihasilkan

B Produce more delicious food
Menghasilkan makanan yang lebih lazat

C Make food more interesting
Menjadikan makanan lebih menarik

D Produce synthetic food
Menghasilkan makanan sintetik

47 Malaysia imports onions from India. Transporting the onions by ship takes longer time and can affect the quality of the onions.
Which of the following is the most suitable processing method to maintain the quality of the onions?
Malaysia mengimport bawang dari India. Penghantaran bawang dengan kapal mengambil masa lebih lama dan boleh mempengaruhi kualiti bawang itu.
Antara kaedah pemprosesan berikut, yang manakah paling sesuai untuk mengekalkan kualiti bawang tersebut?

A Vacuum packaging
Pembungkusan vakum

B Freeze-drying
Kering beku

C Cooling
Pendinginan

D Irradiation
Penyinaran

48 Diagram 21 shows a kitchenware which is made from thermoset polymer **S**.
Rajah 21 *menunjukkan suatu peralatan dapur yang diperbuat daripada polimer termoset* **S**.

Diagram 21
Rajah 21

What is **S**?
Apakah **S***?*

A Melamine
Melamina

B Polyethene
Polietena

C Polystyrene
Polistirena

D Polyvinyl chloride
Polivinil klorida

49 Study the information below.
Kaji maklumat di bawah.

A group of students had visited Gua Kelawar in Langkawi Island. During the tour, the tour guide explained that the bats produce an echo with frequency of 20 000 Hz. The velocity of the sound in the cave is 340 ms^{-1} and the velocity of the sound in the air is 330 ms^{-1}.
Sekumpulan murid telah melawat Gua Kelawar di Pulau Langkawi. Semasa lawatan, pemandu pelancong menerangkan bahawa kelawar menghasilkan gema yang berfrekuensi 20 000 Hz. *Halaju bunyi dalam gua ialah* 340 ms^{-1} *dan halaju bunyi dalam udara ialah* 330 ms^{-1}.

Based on the information, what is the wave length of the sound produced in the cave?
[Velocity = Frequency × Wave length]
Berdasarkan maklumat tersebut, berapakah panjang gelombang bagi bunyi yang dihasilkan di dalam gua?
[*Halaju = Frekuensi × Panjang gelombang*]

A 0.0165 m

B 0.0170 m

C 58.82 m

D 60.60 m

50 Diagram 22 shows a long distance communication between three businessmen.
Rajah 22 menunjukkan suatu komunikasi jarak jauh antara tiga orang ahli perniagaan.

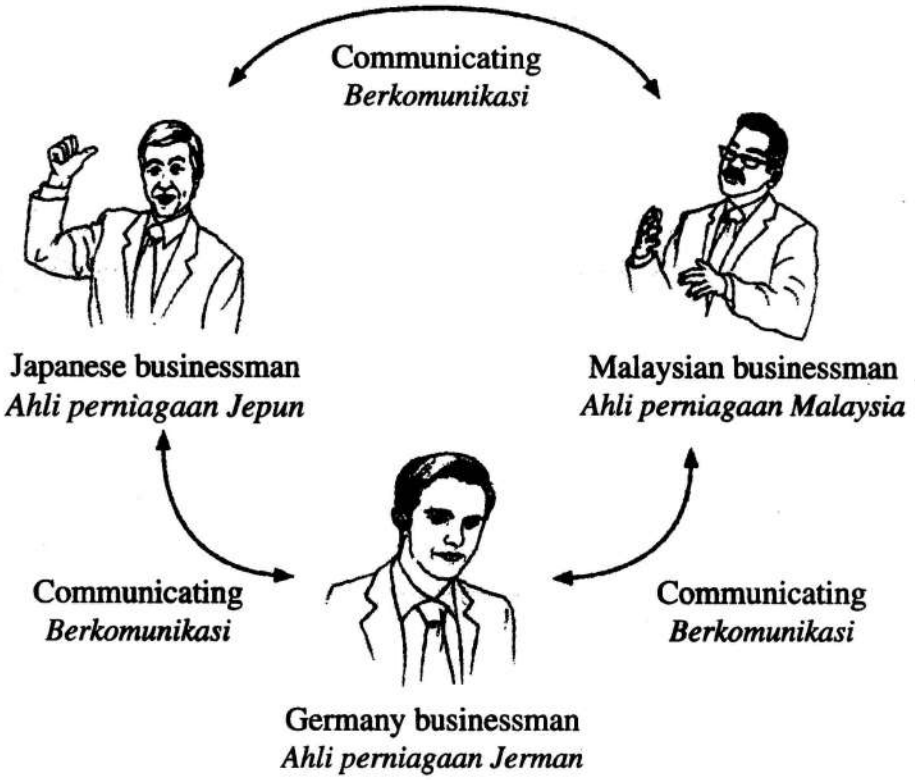


Diagram 22
Rajah 22

What is the most suitable method to communicate faster?
Apakah kaedah yang paling sesuai untuk berkomunikasi dengan lebih pantas?

A Fax
Faks

B Email
E-mel

C Telegram
Telegram

D Video telecast
Sidang video

END OF QUESTION PAPER
KERTAS PEPERIKSAAN TAMAT