The following 50 questions are in single-best-answer, extended matching and free-text formats to demonstrate the formats that are currently used in the AKT.

Some of these questions relate to current best practice. They should be answered in relation to national UK guidance and not according to an individual's local arrangements.

In the live test of three hours and ten minutes duration, all 200 items will be used in calculating your score. Marks will not be deducted for incorrect answers; your total score on the test will be the number of correct answers you give. You are therefore advised to attempt all items.
1. **Post-myocardial infarction**

A 58-year-old woman had an ST-segment-elevation myocardial infarction two months ago. She has made a good recovery but has low mood and a poor sleep pattern with early morning wakening. She wishes to try medication as her symptoms are affecting her ability to work.

**Which is the SINGLE MOST appropriate antidepressant drug? Select ONE option only.**

A  Amitriptyline  
B  Fluoxetine  
C  Lofepramine  
D  Mirtazapine  
E  Venlafaxine

2. **Weakness**

A 35-year-old woman has noticed increasing weakness and numbness in her legs and arms over the past few days, and today she is feeling short of breath on exertion. Six weeks ago she had diarrhoea while on holiday abroad and stool culture confirmed infection with Campylobacter jejuni. She was treated with ciprofloxacin and recovered fully.

**Which is the SINGLE MOST likely diagnosis? Select ONE option only.**

A  Drug-induced neuropathy  
B  Guillain-Barré syndrome  
C  Motor neurone disease  
D  Myasthenia gravis  
E  Multiple sclerosis
3. Emergency contraception

A 26-year-old woman had unprotected sexual intercourse 12 hours ago. She is mid-cycle and this is the first occasion in this cycle. She wishes to start the combined oral contraceptive pill today in addition to Levonelle emergency contraception.

Which is the SINGLE MOST appropriate length of time, if any, that she needs extra precautions to prevent pregnancy? Select ONE option only.

A  2 days
B  7 days
C  9 days
D  16 days
E  No additional contraceptive precautions necessary
4. Skin rash

This nine-year-old boy has been unwell for the past few days and developed a rash affecting his trunk and limbs yesterday. He has no underlying medical problems and is feeling better today. His mother has used a cream recommended by the pharmacist.

Which is the SINGLE MOST appropriate management option? Select ONE option only.

A  No additional treatment
B  Oral aciclovir
C  Topical aciclovir
D  Topical fusidic acid
E  Topical mupirocin
5. Investigation of deafness

A 56-year-old man has a two-year history of deafness affecting his right ear. He has had intermittent episodes of vertigo, tinnitus and vomiting each lasting a few hours. The whispered voice test is diminished in his right ear. You perform tuning fork tests.

Which is the SINGLE MOST likely result of the tuning fork tests? Select ONE option only.

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<tr>
<th></th>
<th>Rinne’s – conduction results</th>
<th>Weber’s – ear localisation</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Air &gt; bone</td>
<td>Left</td>
</tr>
<tr>
<td>B</td>
<td>Air &gt; bone</td>
<td>Right</td>
</tr>
<tr>
<td>C</td>
<td>Bone &gt; air</td>
<td>Left</td>
</tr>
<tr>
<td>D</td>
<td>Bone &gt; air</td>
<td>Right</td>
</tr>
<tr>
<td>E</td>
<td>Air same as bone</td>
<td>Equal</td>
</tr>
</tbody>
</table>

6. Lethargy

A 50-year-old man has become increasingly tired and lethargic over the past six months and has developed erectile dysfunction. His wife comments that he looks tanned even in the winter months. His serum ferritin and transferrin levels are significantly raised, but his haemoglobin is normal.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Addison’s disease  
B  Chronic active hepatitis  
C  Diabetes mellitus  
D  Haemochromatosis  
E  Hypothyroidism
Viruses

A  Adenovirus  F  Herpes simplex virus
B  Cytomegalovirus  G  Human papilloma virus
C  Echovirus  H  Respiratory syncytial virus
D  Epstein-Barr virus  I  Rotavirus
E  Hepatitis B virus  J  Rubella virus

For each clinical condition, select the SINGLE MOST likely causative virus from the list of options.

7. Hepatocellular carcinoma

8. Warts

9. Visual disturbance

A 20-year-old woman notices bright lines of light in both visual fields followed shortly afterwards by a partial loss of her vision. Her visual symptoms resolve after one hour but she has slight nausea.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Acute glaucoma
B  Migraine
C  Optic neuritis
D  Retinal detachment
E  Vitreous detachment
Risk of hip fracture

A cohort study evaluated the relationship between dietary calcium supplementation and hip fractures in post-menopausal women. 100 women took calcium supplements and 100 women took placebo tablets.

Over the three year period, five women had hip fractures in the calcium group and ten women had hip fractures in the placebo group. The 95% confidence interval is 0.18 to 1.4.

10. What is the RISK of a hip fracture in the TREATED group? Select ONE option only.

A 0.01  
B 0.05  
C 0.1  
D 0.5  
E 1.0  

11. What is the RISK RATIO? Select ONE option only.

A 0.01  
B 0.05  
C 0.1  
D 0.5  
E 1.0  

12. Epidemiological measures

Which is the SINGLE MOST appropriate epidemiological measure to estimate the rate at which the new cases of papilloma virus infection occur among students on a college campus? Select ONE option only.

A  Case fatality
B  Incidence
C  Median survival
D  Mortality
E  Prevalence

13. Drug dose calculation

A three-year-old girl has recurrent urinary tract infections and the paediatrician has recommended trimethoprim prophylaxis at a dose of 2 mg/kg at night.

She weighs 12.5 kg and trimethoprim suspension is available as 50 mg/5mls.

What volume of suspension (in mls) should the child’s mother give her every evening?

Type your answer in the following text box. Use figures NOT words. Percentages and fractions are NOT acceptable.

mls
14. Side effects of rheumatological drugs

MATCH EACH drug to the MOST LIKELY side effect. All four drugs must be correctly matched to score ONE mark.

A. Diclofenac
B. Hydroxychloroquine
C. Infliximab
D. Methotrexate

<table>
<thead>
<tr>
<th>Side effect</th>
<th>Most likely causative drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone marrow suppression</td>
<td></td>
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<tr>
<td>Stroke</td>
<td></td>
</tr>
<tr>
<td>Retinopathy</td>
<td></td>
</tr>
<tr>
<td>Septicaemia</td>
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</tbody>
</table>
15. Management of skin lesions

The parents of a six-year-old child are concerned about the multiple skin lesions that have spread on his face over the past 12 weeks.

Which is the SINGLE MOST appropriate management option? Select ONE option only.

A  No treatment necessary
B  Oral flucloxacillin
C  Topical aciclovir
D  Topical fusidic acid
E  Topical hydrocortisone 1%
16. Visual disturbance

A 63-year-old man with poorly controlled hypertension, suddenly loses his vision in his left eye and his visual acuity on the left is reduced to hand movements only. Visual acuity on the right is 6/6.

Fundoscopy of the left eye shows flame-shaped retinal haemorrhages spreading out from the disc.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Acute glaucoma
B  Central retinal artery occlusion
C  Central retinal vein occlusion
D  Retinal detachment
E  Vitreous haemorrhage
Disorders of glucose metabolism

A  Gestational diabetes
B  Impaired fasting glycaemia
C  Impaired glucose tolerance
D  Maturity Onset Diabetes of the Young (MODY)
E  Normal
F  Prediabetes
G  Type 1 diabetes
E  Type 2 diabetes

For the patient described, select the SINGLE MOST likely diagnosis from the list of options.

17. A 47-year-old overweight woman had a screening blood test because of her family history of type 2 diabetes. Her result is as follows:

HbA1c 40 mmol/mol

18. A 15-year-old obese boy has significant glycosuria on more than one occasion. He is well with no symptoms. His father and brother both have diabetes.

Random blood glucose 12 mmol/L
Blood ketones negative

19. Child development

Specialist referral is MOST APPROPRIATE for which TWO of the following children? Select TWO options only.

A  A four-week-old boy whose mother reports he does not smile
B  A four-month-old girl who cannot grasp an object when it is placed in her hand
C  A four-month-old boy who cannot sit unsupported
D  A two-year-old girl who cannot hop
E  A three-year-old boy who cannot combine words into a simple sentence
20. Consent for disclosure of medical information

Which **TWO** of the following statements are the **MOST APPROPRIATE** considerations when providing information to third parties such as insurers? Select **TWO** options only.

A  Disclose all information written in the medical record
B  Do not disclose the content of the report to your patient
C  Ensure the patient has sufficient information about the likely consequences of disclosure
D  Relevant information can be withheld under certain circumstances
E  Use the proforma provided by the third party
F  Patient consent can be automatically assumed by receipt of the insurers’ request

21. Drug dose calculation

A five-year-old girl has an asthma exacerbation which you decide to treat with soluble prednisolone at a dose of 1.5 mg/kg once per day for three days initially.

She weighs 20 kg.

**What is the correct daily dose of prednisolone?**

Type your answer in the following text box. Use figures NOT words. Percentages, equations and fractions are NOT acceptable.

```
mg
```
22. Skin infections in children

An eight-year-old child has had a localised rash around the nose for two days.

Which is the SINGLE MOST appropriate MINIMUM number of days that this child be kept away from school once treatment has started?

Select ONE option only.

A. 1  
B. 2  
C. 3  
D. 5  
E. 7
23. Liver disease

A 28-year-old man has had a flu-like illness with anorexia, nausea and fever for a week. He is jaundiced but abdominal and general examination is otherwise normal.

His liver function tests are as follows (normal ranges in brackets):

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilirubin</td>
<td>98 µmol/L</td>
<td>(&lt; 21 µmol/L)</td>
</tr>
<tr>
<td>Aspartate aminotransferase (AST)</td>
<td>228 IU/L</td>
<td>(&lt; 40 IU/L)</td>
</tr>
<tr>
<td>Alanine aminotransferase (ALT)</td>
<td>186 IU/L</td>
<td>(&lt; 40 IU/L)</td>
</tr>
<tr>
<td>Alkaline phosphatase</td>
<td>652 IU/L</td>
<td>(35 – 104 IU/L)</td>
</tr>
<tr>
<td>Albumin</td>
<td>35 g/L</td>
<td>(35 – 50 g/L)</td>
</tr>
<tr>
<td>Total protein</td>
<td>73 g/L</td>
<td>(60 – 80 g/L)</td>
</tr>
</tbody>
</table>

Part A
Which is the SINGLE MOST likely diagnosis? Select ONE option from A – E only.

A  Alcoholic liver disease
B  Cholelithiasis
C  Gilbert’s syndrome
D  Hepatitis A
E  Primary biliary cirrhosis

Part B
Which is the SINGLE MOST appropriate SPECIFIC diagnostic test for this patient? Select ONE option from F - J only.

F  Antimitochondrial antibodies
G  Blood alcohol level
H  Buccal smear
I  Hepatitis A IgM
J  Ultrasound liver and gallbladder
Risk assessment tools

A  ABCD²
B  CHAD₂DS₂VASC
C  Framingham
D  FRAX
E  QRisk
F  None of the above

For the patient described, select the SINGLE MOST appropriate risk assessment tool, if any, from the list of options.

24. A 54-year-old woman with type 2 diabetes has a sudden weakness of her left arm, which returns to normal within 20 minutes. Her blood pressure is 150/60, her pulse is 72 and regular, and her heart sounds are normal.

25. A 58-year-old man with a previous history of angina has a blood pressure of 180/80, a regular pulse of 84 and normal heart sounds.

You wish to assess his 10-year risk of future cardiovascular events.

26. Medical standards of fitness to drive

A 65-year-old retired man had a routine coronary artery angioplasty and stent insertion one week ago. He is now well and asymptomatic. He asks you for advice about driving his car.

According to DVLA guidance, which is the SINGLE MOST appropriate advice with regard to driving? Select ONE option only.

A  He may resume driving immediately
B  He may resume driving after a further week
C  He may resume driving one month after the angioplasty
D  He may resume driving six months after the angioplasty
E  He must inform the DVLA and await their decision before resuming driving
27. Data interpretation

The following graph shows age-standardised INCIDENCE rates for common cancers in males in the United Kingdom (2008-2010).

Which SINGLE cancer is represented by the bar labelled 1? Select ONE option only.

A  Bladder
B  Colorectal
C  Lung
D  Non-Hodgkin's lymphoma
E  Prostate
28. Statement of Fitness for Work (Form Med 3)

Which **SINGLE ONE** of the following statements applies to Form Med 3? Select **ONE** option only.

A  Advice on the statement is binding to employers
B  Assessment date can be retrospective based on written information
C  Can be completed by a doctor or practice nurse
D  Can only be used for a maximum period of one month
E  Should be used to certify a period of inpatient care

29. Management of dyspepsia

A 43-year-old woman was diagnosed with a duodenal ulcer at gastroscopy. She has recently completed a course of *Helicobacter pylori* triple therapy. She comes to see you four weeks later and is symptom free.

Which is the **SINGLE MOST** appropriate management option? Select **ONE** option only.

A  Continue proton pump inhibitor for a further one week
B  Check *Helicobacter pylori* serology
C  No follow up needed
D  Refer for barium meal
E  Repeat gastroscopy
30. The investigation of infertility

A 25-year-old woman has been infertile for three years. She has had recurrent pelvic pain due to endometriosis. Investigations in primary care are reported as follows:

- Full blood count – normal
- Thyroid function – normal
- Sex hormone profile - normal
- Rubella serology – immune
- Day 21 progesterone – normal
- *Chlamydia* swab – negative
- Pelvic ultrasound - normal

Her partner’s semen analysis is reported as normal.

A referral to secondary care is agreed and she asks what is likely to happen next.

**According to current guidelines, which is the SINGLE MOST appropriate NEXT investigation?** Select ONE option only.

A Cervical cytology

B Hysterosalpingogram

C Hysteroscopy

D Laparoscopy

E Post-coital test
31. Asthma

An 18-year-old woman with asthma has become increasingly wheezy over the past two days. Her hay fever symptoms are also worse than usual. After a salbutamol nebuliser, her peak flow rate increases from 250 to 450 L/minute and she feels much better.

Which is the SINGLE MOST appropriate NEXT management step? Select ONE option only.

A Continue usual maintenance inhaler regime
B Nebulised salbutamol as required
C Oral amoxicillin
D Oral chlorphenamine
E Oral prednisolone

32. Back pain

A 70-year-old woman attends for her repeat prescription of 100 mcg levothyroxine daily, which she has been taking for the past 30 years. The last record of any blood test was six years ago. She mentions a recent episode of quite severe localised back pain which has now settled to a dull ache around the L3 region. She has no neurological signs

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A Lumbar stenosis
B Osteomalacia
C Osteomyelitis
D Osteoporosis
E Paget’s disease
33. **Contraception**

Which **ONE** of the following is an **ABSOLUTE** contraindication to the use of medroxyprogesterone acetate as a contraceptive? Select **ONE** option only.

A  Diabetes mellitus  
B  Breast cancer diagnosed in the previous five years  
C  Past history of ovarian cysts  
D  Previous ectopic pregnancy  
E  Smoking

34. **Management of chest pain**

A 55-year-old man has had severe central chest pain radiating into his left arm for the past two hours. He has no previous significant medical history. His BP is 150/85, his chest is clear and his pulse is regular 90/min.

In addition to aspirin, which is the **SINGLE MOST appropriate NEXT drug for this patient?** Select **ONE** option only.

A  Amiodarone  
B  Carvedilol  
C  Diamorphine  
D  Furosemide  
E  Ramipril
35. Constipation

An 80-year-old edentulous patient who lives alone and refuses meals on wheels, complains of constipation without rectal bleeding. Her weight is steady, abdominal and rectal examinations are normal and she is otherwise well.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Alzheimer’s disease  
B  Carcinoma of the colon  
C  Diverticular disease  
D  Hypothyroidism  
E  Poor fibre intake

36. Child growth

A family from Romania arrived in the UK six months ago and registered with the practice. Their eight-month-old baby daughter who was born in Romania has been seen by the health visitor regularly. Her routine measurements have fallen from the 50th centile growth line to below the 25th centile growth line over the past three months. She has a history of minor respiratory infections and recurrent gastroenteritis.

Which ONE of the following is the most important INITIAL investigation? Select ONE option only.

A  Chromosome analysis  
B  Glucose-6-phosphate dehydrogenase level  
C  Jejunal biopsy  
D  Sweat test  
E  Thyroid function test
37. Childhood illness

A seven-year-old girl has a fever associated with a sore throat and loss of appetite. She has small red ulcers in her mouth and itchy spots on the palms of her hands and soles of her feet.

Which is the SINGLE MOST likely virus causing her symptoms? Select ONE option only.

A  Coxsackie A  
B  Herpes simplex  
C  Measles  
D  Parvovirus B19  
E  Varicella-zoster

38. Tiredness

A 50-year-old woman, who has recently been diagnosed with hypertension, complains of pain in her knees. She feels tired and her memory is poor. She has lost her appetite recently and feels nauseated most of the time. Urinalysis is normal.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Chronic fatigue syndrome  
B  Chronic renal failure  
C  Coeliac disease  
D  Cushing's syndrome  
E  Hyperparathyroidism
39. Anal pain

For the past week, a 30-year-old woman has noticed fresh red blood on the toilet paper and experiences sharp pain around the anus when she defecates. Today she can feel a very tender lump at the anal margin.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Anal fissure
B  Ischio-rectal abscess
C  Prolapsed rectal mucosa
D  Rectal carcinoma
E  Thrombosed haemorrhoid

40. Tiredness

A 35-year-old woman stopped the combined oral contraceptive pill six months ago because of increased blood pressure. Her periods have not returned, she feels generally tired and has put on weight. A pregnancy test is negative and her fasting blood glucose is 9.2 mmol/L.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Anaemia
B  Chronic active hepatitis
C  Coeliac disease
D  Cushing's disease
E  Hypothyroidism
Causes of double vision

A  Berry aneurysm
B  Cerebral glioma
C  Drug-induced
D  Graves’ disease
E  Multiple sclerosis
F  Myasthenia gravis
G  Stroke

For each patient described, select the SINGLE MOST likely diagnosis from the list of options. Select ONE option only.

41. A 27-year-old woman who is a non-smoker, suddenly develops double vision. She had an episode of reduced visual acuity in her left eye whilst on holiday 18 months previously, for which no cause was identified. She has no other significant past medical history.

42. A 35-year-old man who is a non-smoker, suddenly develops a severe headache and double vision. His right pupil is fixed and dilated.

43. A 48-year-old woman has transitory double vision towards the end of most days. She smokes 10 cigarettes/day. She has vitiligo and hypothyroidism.
44. Study design

Several studies have reported on the risk of lung cancer and exposure to tobacco smoke. Researchers now wish to reach a summary conclusion about the overall findings.

**Which is the SINGLE MOST appropriate study design? Select ONE option only.**

A  Case control study
B  Cohort study
C  Correlation study
D  Descriptive study
E  Meta-analysis

45. Drug side effects

According to the current edition of the BNF, the following is a list of known side effects of clopidogrel.

**MATCH each side effect of clopidogrel to the MOST APPROPRIATE column with regard to the predicted frequency.**

A.  Acute liver failure
B.  Dyspepsia
C.  Pancytopaenia
D.  Stevens-Johnson syndrome

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<tr>
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<th>Common</th>
<th>Very rare</th>
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</table>
46. **Topical corticosteroids**

1. Clobetasol propionate 0.05%
2. Clobetasone butyrate 0.05%
3. Hydrocortisone 0.5%
4. Hydrocortisone butyrate 0.1%

Which of the following represents the order of preparations from LEAST to MOST potent steroid? Select ONE option only.

A 3,2,4,1  
B 3,4,1,2  
C 3,4,2,1  
D 4,2,3,1  
E 4,3,1,2  
F 4,3,2,1

47. **Drug interactions**

Grapefruit juice should be avoided with which ONE of the following drugs? Select ONE option only.

A Aciclovir  
B Amoxicillin  
C Ramipril  
D Simvastatin  
E Warfarin
48. Treatment of fungal nail infections

Which is the SINGLE MOST appropriate treatment for a *Trichophyton rubrum* toenail infection? Select ONE option only

A Oral fluconazole
B Oral griseofulvin
C Oral terbinafine
D Topical clotrimazole
E Topical terbinafine

49. Abnormal blood results

A 56-year-old woman with type 2 diabetes has lost her appetite and developed pruritus over the past few days. On examination she is jaundiced but general and abdominal examination is otherwise normal.

She takes regular metformin and simvastatin, and has just finished a course of erythromycin for localised cellulitis.

Her liver function tests are as follows (normal ranges in brackets):

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilirubin</td>
<td>112 µmol/L</td>
<td>(&lt; 21 µmol/L)</td>
</tr>
<tr>
<td>Aspartate aminotransferase (AST)</td>
<td>56 IU/L</td>
<td>(&lt; 40 IU/L)</td>
</tr>
<tr>
<td>Alanine aminotransferase (ALT)</td>
<td>72 IU/L</td>
<td>(&lt; 40 IU/L)</td>
</tr>
<tr>
<td>Alkaline phosphatase</td>
<td>986 IU/L</td>
<td>(35 – 104 IU/L)</td>
</tr>
<tr>
<td>Albumin</td>
<td>35 g/L</td>
<td>(35 – 50 g/L)</td>
</tr>
<tr>
<td>Total protein</td>
<td>73 g/L</td>
<td>(60 – 80 g/L)</td>
</tr>
</tbody>
</table>

**Which is the SINGLE MOST LIKELY diagnosis? Select ONE option only.**

A Alcoholic liver disease
B Drug-induced cholestasis
C Fatty liver disease
D Gilbert’s syndrome
E Primary biliary cirrhosis
A 34-year-old woman has developed this rash on her buttock over the past two days. It is sore to touch and she has no rash elsewhere. She says this has happened on at least three previous occasions and the rash is always in the same place.

Which is the SINGLE MOST likely diagnosis? Select ONE option only.

A  Chickenpox
B  Coxsackie virus infection
C  Dermatitis herpetiformis
D  Herpes simplex
E  Herpes zoster