

Question 1

The multiple-choice questions were handled very well.

Question 2

Candidates did not understand the technical detail. Aspects such as quad core, dual core CPUs, clock multiplication and DDR RAM need to be taught in detail.

Other matters that should be discussed in class are open source software, the difference between multitasking and multithreading, and cache memory. It seemed that some candidates were familiar with these, but did not know how to express themselves.

The question on the Instruction Cycle was answered fairly well, although one would have expected this to be an easy question that most candidates could answer correctly.

The questions on Voice-over Internet Protocol and drivers (2.6 and 2.7) were answered fairly well.

Very few candidates knew anything about spooling.

Questions 3 and 4

These two questions were general knowledge questions. Teachers should have more discussions in class, show videos, browse the Internet, and buy magazines and newspapers with relevant articles.

Question 5

Teachers need to teach algorithms and not only programming – candidates did not know how to express themselves. For example, they knew about set methods, but many could not write out one. Many candidates could not say why a set method [setNumDays(days)] should be public. OOP should be discussed in class and candidates should not simply use these in programs without understanding why they do so.

In Question 5.1.1, candidates were asked to identify three tests that can be done to ensure that the date-of-birth section of an ID number is valid. Answers such as testing that it is 6 characters long could not be accepted, because, given an ID number, one would extract the first 6 characters as being the date of birth, and this was the assumption on which the question was based.

In Question 5.2.3, candidates were asked about runtime errors and logical errors. Some candidates struggled to explain the difference, while some explained syntax errors. Teachers should discuss the different types of errors. Candidates might know what a problem is, but not what the correct terminology is.

In Question 5.4.2, candidates were asked about good programming principles, but some candidates gave opinions on user-friendliness.

The question on trace tables was a surprise to many. When teaching algorithms, one should also use trace tables to explain how an algorithm works and how it can be used to debug small sections of code.

Database normalisation was taught well and there was a vast improvement on the answers of the previous year.

Question 6

The integrated scenario combines knowledge from all learning outcomes. In this question the emphasis was on Internet-related issues. Make sure that candidates know about the different types of Internet connections, protocols and safety issues, such as a virus, a Trojan horse, a secure socket layer and encryption.

Questions about Facebook are problematic, as schools generally block this site (owing to bandwidth and cap restrictions) and therefore candidates who do not have Internet connectivity at home are at a disadvantage in this respect. Teachers should try to show these candidates what these websites look like, or at least hold class discussions to widen their knowledge.

The question on spyware was answered well.

Candidates should once again be reminded to read the questions and provide what is asked for. For example, in Question 6.1.3 (a), the candidates were asked to "*List and briefly explain the basis feature of any three of the protocols included in the TCP/IP protocol suite.*" As each question counted only 1 mark, candidates did not receive any marks for only listing three protocols.

Candidates should also make sure they answer all questions. Some candidates left out Question 2.6.2.

Vraag 1

Die veelkeusevrae is baie goed beantwoord.

Vraag 2

Kandidate het nie die tegniese detail verstaan nie. Begrippe soos *quad core* en *dual core* sve's, klokvermenigvuldiging en DDR-geheue moet in detail onderrig word.

Ander begrippe wat in die klas bespreek moet word, is oopbronprogrammatuur, die verskil tussen multitaak- en multidraadverwerking, en kasgeheue. Dit het gelyk asof sommige kandidate bekend was met die begrippe, maar nie geweet het hoe om hulself uit te druk nie.

Die vraag oor die Instruksiesiklus is redelik goed beantwoord, alhoewel verwag sou word dat aangesien dit 'n maklike vraag was, die meeste kandidate dit korrek sou kon beantwoord.

Die vrae oor *Voice over Internet Protocol* en drywerprogramme (2.6 en 2.7) is redelik goed beantwoord.

Baie min kandidate het iets van tussentydse databuffering (*spooling*) geweet.

Vrae 3 en 4

Hierdie twee vrae is 'algemene kennis'-tipe vrae. Onderwysers moet meer besprekings in die klas hê, videos vertoon, rondsoek op die Internet, en tydskrifte en koerante met artikels aankoop.

Vraag 5

Onderwysers moet algoritmes ook onderrig en nie net programmering nie – kandidate weet nie hoe om hulself uit te druk nie. Hulle weet bv. van set-metodes, maar baie van hulle kon nie een in die teorie-eksamen skryf nie. Baie kandidate kon ook nie sê hoekom 'n set-metode (*setAantDae(dae)*) publiek moet wees nie. Die konsepte van OOP moet in die klas bespreek word en kandidate moet dit nie net in hulle programme gebruik sonder om te verstaan waarom dit so is nie.

In vraag 5.1.1 is kandidate gevra om drie toetse te noem wat gebruik kan word om te verseker dat die geboortedatumgedeelte van 'n ID-nommer geldig is. Antwoorde soos om te toets of dit 6 karakters lank is, is nie aanvaar nie, omdat, gegee 'n ID nommer, die eerste 6 karakters uitgehaal sal word as die geboortedatum, aangesien dit die veronderstelling was waarop die vraag gebaseer was.

In vraag 5.2.3 is kandidate gevra oor looptydfoute en logiese foute. Sommige kandidate het gesukkel met die verskil tussen hierdie twee soorte foute en ander het sintaksfoute beskryf. Onderwysers moet die verskillende soorte foute bespreek. Kandidate mag soms weet wat die probleem is, maar nie wat die korrekte terminologie is nie.

In vraag 5.4.2 is kandidate gevra oor goeie programmeringsbeginsels, maar sommige het die vraag beantwoord deur na gebruikersvriendelikheid te verwys.

Die vraag oor naspeurtabelle was vir baie 'n verrassing. Wanneer algoritmes onderrig word, moet ook van naspeurtable gebruik gemaak word om te verduidelik hoe 'n algoritme werk en hoe dit gebruik kan word om klein gedeeltes programkode te ontfout.

Databasisnormalisering is goed onderrig en daar was 'n groot verbetering op die antwoorde van die vorige jaar.

Vraag 6

Die geïntegreerde scenario het die inligting van alle leeruitkomst gekombineer. In hierdie vraag was die klem op Internetverwante sake. Kandidate moet die verskil ken tussen verskillende Internetverbindings, protokols en veiligheidskwessies soos 'n virus, 'n Trojaanse perd, 'n *secure socket layer* en enkripsie.

Vrae oor Facebook is problematies aangesien baie skole hierdie webwerf blokkeer (a.g.v. 'n beperkte bandwydte) en daarom word kandidate wat nie tuis Internet toegang het nie hierdeur benadeel. Onderwysers moet probeer om aan sodanige kandidate te wys hoe hierdie webwerwe lyk, of hulle ten minste te bespreek om sodoende hulle kennis daaroor te verbreed.

Die vraag oor spioenware is goed beantwoord.

Kandidate moet weereens daaraan herinner word dat hulle die vrae moet lees en net dit wat gevra word moet beantwoord. In vraag 6.1.3 (a) is kandidate gevra: "Noem en verduidelik kortliks die basiese eienskap van enige DRIE van die protokolle wat in die TCP/IP protokolsuite ingesluit is." Aangesien elke antwoord slegs 1 punt getel het, het kandidate geen punte ontvang indien die drie protokols slegs genoem is nie.

Kandidate moet ook seker maak dat hulle al die vrae beantwoord. Sommige kandidate het bv. vraag 2.6.2 uitgelaat.