May Exam:

GDG: Further feedback available in the linked PDF:

CS:

Question 3: The great majority of students attempted this question.

A) i) It was necessary to mention that it was the different number of ROWS that meant that the two matrices could not be added.
A) v) there were a few mistakes here
The other parts of a) were generally done well.

B) i) This question gave disappointing answers. Some students could not interpret their results while others 'guessed' - with poor results.  
ii) Generally done reasonably well  
iii) A common mistake was to multiply the matrices in the wrong order and thus end up with a different point.

Question 4: The great majority of students attempted this question.

A) Some students made heavy weather of this question but it was not actually wrong. Others did well.

B) While most students found the images of all four vertices correctly (or with the occasional minor error), a significant number did something totally different suggesting a lack of understanding of matrix multiplication.

C) Few problems here for students who had completed part b) correctly.

General: while most students seemed to do reasonably well, there were some students who really didn't seem to engage with the questions except for some basic material that may have been assimilated before the beginning of this course. It would be interesting to see a correlation of the exam marks against lecture attendance.
The following only concerns Section A of this exam.

General remarks: 159 students answered questions from this part. The average mark for this part was 11 marks out of 20. 40 students received a mark of 7 or fewer; of these two had 0 marks, two had 1 mark, and one student had 2 marks—these candidates seem to have done very little to prepare for the exam. 57 students received a mark of 14 or better, one of these got 20 out of 20.

Comments on exam technique: Firstly I am rather surprised at how few students answered Question 3. This makes me wonder whether many students just do the first two questions for no better reason that they appear first on the script. Students should always read all the questions and then decide which ones they're best equipped to answer. While working on past papers it would be a good idea to keep track of what kind of questions you do particularly well on and which ones you tend to struggle with. That will help making decisions when you are sitting the actual exam.

Secondly it was good to see students starting to use sample words to test their solutions, and I noticed a few cases where students managed to correct their answer based on such tests. Other students, however, were not very creative in coming up with sample words.

Question 1. 150 students attempted this question. The average mark was 5.6 out of 10. 17 students received 2 marks or fewer, 35 students got 8 marks or higher. This is a noticeable improvement on last year.

a) Most students could answer this correctly in the affirmative. The arguments given weren't always convincing. The mark for it was awarded if a student pointed out that the language in question consisted of words where 0 and 1 alternate and which start and end with a 0, or that for every natural number n, 01(n)0 = 0(10)n, or a similarly convincing reason.

b) Quite a few students answered this correctly. The smallest automaton possible has six states (it has to remember how many cs modulo 3 have been seen and whether an a has occurred), and a very regular structure. Where mistakes were made typically the student's automaton did not keep this information straight. Most answers only accepted words which were in the language, but often they left out infinitely many valid choices (the a mentioned can occur anywhere in the word, not just at the start or end, b transitions have to be included, etc). With test words such as cabcc, cbcac and so on they could have found these mistakes. Some automata did not require the letter a to be included in all words accepted (accepting for example ccc), while others drew transitions labelled c which meant that divisibility by 3 became messed up (accepting for example acccc or accccc). Some did not read the question closely enough and submitted two automata, one for each criterion, but did not go on to combine the two in the product.

c) A valid answer is (01|1)((00|0|e)(10|1))^*. Many answers were variations of this, often having only 00 in the middle and therefore excluding those words that do not contain the string 00 at all. More typically, however, mistakes were made when it came to making sure that every string not containing 00 could be formed to either side of 00 (for example, *001*, or some combination of 1*(01)^* on the left of 00, neither of which is sufficient).

Question 2. This question was attempted by 136 students. The average mark was 5.5 out of ten. 31 students received a mark of 2 or lower, while 42 students got a mark of eight or more. Most students started by drawing an NFA with epsilon-transitions, and the correct one was worth three marks. Three further marks were available for removing the epsilon-transitions and four for turning the result into a DFA. Students who tried to cut short the process (for example, by not having epsilon-transitions in their first automaton) typically made mistakes. There were surprisingly many incorrect NFAs in the first step. It seems that quite a few students missed the difference between (a|b)^* and (ab)^*, both of which appear in the regular
expression given. Some students seemed to mis-parse the expression given—it is a choice between \((a|b)^*a\) (that is all words which end in a) and \((ab)^*b\). Students often also did not seem to follow the algorithm for turning a regular expression into an automaton, and those who did often forgot that the Kleene * might be matched 0 times (so the automaton should accept the single letter words a and b). In many cases, further mistakes were then made in turning the automaton from the first step into a DFA, losing additional marks. Most direct attempts at coming up with a DFA for the regular expression did not come close to being correct, and some weren't deterministic.

If the original automaton was incorrect, but it was correctly turned into a DFA then the marks for these steps were given, provided the process was about as complex as that for a valid automaton. Few students managed to do this without introducing further mistakes.

Question 3. This question was attempted by only 32 students. It had an average mark of 5.4 out of 10. Three students received a mark of at most 2, while eight managed 8 or more.

a) There were many incorrect answers here. Either they allowed creating infinitely many invalid words, or they missed infinitely many valid ones. There is an example in the notes of a language where the number of as is equal to the number of bs, and this doesn't require a lot of change to turn it into an answer to this question.

b) Most students could do this part, but some only because their grammar of part a) allowed them to create almost any word. Some parse trees were not described appropriately.

c) Most students could answer correctly that this is impossible, and many could give the correct reason that an automaton for the language in question would require infinitely many states to keep track of the number of as and b/cs seen.

d) Most students could answer this correctly, typically by working out that a correct regular expression for the language in question is given by \((01)^*|^{(10)^*}\). It was very good to see that very few people fell into the trap of assuming the argument for d) can be applied here!

Section B - Thierry Scheurer

Comments on Part 2 of Comp11212 exam paper (Questions 4, 5, 6)

This year the paper for Part 2 was better balanced in that students had to answer one question on chapters 1 and 2, Q4, and one on chapters 3 and 4 (either Q5 or Q6) – last year most students tackled questions on chapters 1 and 2 only. The questions proved to be well calibrated, on the basis of frequency of answers and given similar distributions of results. They were of the right level. Questions Q5 and Q6, though on more advanced material, were comparable to Q4 in difficulty.

Some students gave excellent answers, but far too many results were well below pass. There were a few blank books, and 21 students attempted only one question instead of the required 2. It is apparent that the main reason for poor results is lack of preparation, as the material is easy once a few basic definitions have been learnt.

In addition there were 8 absentees, but these may be due to external factors.

Section C - Howard Barringer

156 students attempted questions from this section

Q7.

125 students answered this question with an average score of 51.36% (28 had a mark of less than 4/10, 43 scored either 4 or 5/10, 41 scored either 6 or 7/10, and 13 scored 8 and above /10).

This question was disappointingly answered by the majority of students. Scripts demonstrated much sloppiness in presentation and detail. Many answers clearly indicated students had not read the question carefully.

For part (a), most students were able to plot the two given functions reasonably for the given
range \((x = 0 \text{ to } 4)\). However, many students failed to label the graphs, or the axes, or include the scale. Some students gave two separate plots --- despite the question specifically asking for one, and some students only managed to plot the straight line.

On part (b), a surprising number of students seemed unable to solve the simple quadratic equation that arose from \(f(x) = g(x)\), forgetting either how to use a formula for the roots, or how to complete the square, e.g. \(x^2 - 6x + 6 = 0\), therefore by adding 3 to each side \(x^2 - 6x + 9 = 3\), and hence \(x = 3 + \sqrt{3}\), or \(3 - \sqrt{3}\). Several students failed to realise they needed to take higher solution, i.e. the upper crossing point on the plot, for the desired value of \(k\). Simple checks against the given plot would show whether you had the right solution.

For part ©, there were a surprising number of nonsense answers, such as giving a specific polynomial function, or even a logarithmic function!

For part (d), a large number of students failed to read the question properly (misinterpreting, therefore, what was meant by comparison against an array element), or just didn't take any notice of the given java code and assuming a linear search, despite the question explicitly stating the code implemented a binary search on a given array. There were even some answers that gave a quadratic, \(n(n-1)/2\), as the worst case, indicating no appreciation of what the binary search was doing.

Q8.

31 students answered this question with an average score of 56.13% (6 had a mark of less than 4/10, 10 scored either 4 or 5/10, 9 scored either 6 or 7/10, and 6 scored 8 and above /10).

Again, students lost marks through sloppiness and lack of detail in their answers.

For part (a), a large number of answers did not indicate that the salesman had to visit each town just once, returning to the start point. Whilst most answers indicated that the number of possible tours grew in a factorial fashion, the key point about intractability, that there is "no known polynomial time algorithm for computing the exact solution", was not stated.

For part (b), a significant number of answers confused a problem's time complexity, with problem size, the former being a function of the latter.

Part ©, where answered, was mostly answered well.

Part (d) showed a surprising number of simple arithmetical slips, e.g. there are \(60 \times 60\) seconds in an hour = 120 !!! Several answers assumed that the number of possible tours was \(n!\), rather than \((n-1)!/2\). Some answers were left as a detailed arithmetic expression --- not a particularly useful estimate!
Colin Steele:

3) a) i) was generally done well. Many students seemed unfamiliar with the concept of radius of convergence in ii).
B) i) done reasonably in most cases other than the general term. Some students had some difficulty relating the results of i) to what was required for ii).
C) In several cases not done. There were some little problems doing this question.

4) a) Generally done well. For part ii), many students were not specific in saying why A and C could not be added i.e. the problem is the number of columns. Sometimes a form was given for AB but, of course, this does not exist.
B) i) Those students who chose to find the inverse by row operations generally did so well.
   There were many mistakes by those who used cofactors.
ii) Those who manged to find the inverse were able to solve the equations. Some students tried to solve the equations without use of the matrix but this did not attract credit as it did not form part of the question.
General Feedback:
• Among about 160 students, 70 percent students answered question 1 and 30 percent students answered question 2;
• The average mark for Part 1 is 60.9% (i.e., about 12 marks out of 20), in which the average mark for question 1 is 62.4% whereas the average for question 2 is 57.3%. Therefore question 2 seems a little more difficult for the students, as less students selected it and the average mark is lower;
• 24 or 15% students received a mark of less than 40% (i.e., 7.5 marks or less). These students seem either having done little to prepare for the exam or having poor understanding about the teaching materials;
• 70 or 43.7% students received a mark of 70% or better (i.e., 14 marks or more).
• General speaking, the students’ performance in Part 1 is satisfactory from the teaching outcome point of view.

Detailed Feedbacks for Question 1:
• Question a). The question is about why the probabilistic approach is needed in the robot localization and the right answer is the uncertainty in robot localization. Most students answered this question correctly.
• Question b). The question is that, under what condition, and the correct answer is that and are mutually exclusive. Most students correctly answered this question. A common wrong answer is that and are independent. However, the two concepts are completely different. "Mutually exclusive" means that and can not happen at the same time whereas "independent" means that the occurrence of one event has no effect on the occurrence of the other.
• Question c). The 1st part of this question is what the mathematical definition of a conditional probability is. Most students answered it correctly. A common mistake is that no mathematical formula was given but what asked is the mathematical definition. The second part is to prove. About half students gave the reasonable proof where the other students failed to do it or do it incorrectly. The issue here is that the students may not have enough training in proof, as the question is relatively simple.
• Question d). There are four sub-questions i) – iv) in this question:
  o About 2/3 students answered question d.i) and d.ii) correctly. The common mistake here was the assumption of the even distribution of the initial location of the robot but the probabilities of the initial location have been given in the question and are obviously not even distributed. Somehow some students ignore this piece of information;
  o Most students answered d.iii) correctly despite this is a more difficult question than d.i) and d.ii). The possible reason for this is that the importance of Bayes’ Theorem and its application in robot localization have been emphasised in teaching and lab and the students seems understanding this part quite well. Most mistakes here were the simple calculation errors.
  o Only about ¼ students answers this question completely and correctly. This is expected, as this is the last question in question 1 and was designed to be more difficult. The common mistakes includes, firstly only answering it partially and incompletely (most common); secondly, using the incorrect formulas. To answer this question correctly, you need to use the extended total probability formula to do the following calculations:

Detailed Feedbacks for Question 2:
• Question a). There are two sub-questions here:
  o Question a.i) is calculating the probability that the undergraduate students get a 1st class exam mark based on the student distribution in each year and the probabilities that students in each year get the 1st class exam marks. This can be solved naturally by total probability formula and is a relatively simple question. However more than half of students answered it incorrectly. The reasons seems that, firstly, as this looked like a simple real life problem, some students tried various intuitive ways to solve it rather than applied the correct probability formula; secondly some students do not know how to formulate the real life problem to a probability computing problem; thirdly students do not a clearly idea how to use total probability formula.
Question a.ii) is calculating the conditional probability after the event that a 1st class student mark is recorded but need to find the probabilities that it belongs to 1st, 2nd or 3rd year students. Most students answer this question right by using Bayes' Theorem. This is another example which shows the students seem having better understanding about how to use Bayes' Theorem than the total probability formula.

• Question b). This question is to prove . This is the same type of questions as c) in question 1. The outcome is about the same. About half students gave the reasonable proof where the other students failed to do it or do it correctly.

• Question c). This question basically asks how Dutch book occurs and under what condition it will occurs. Due to Ramsey – de Finetti Theorem, most students have no problem to answer the question under what condition Dutch book occurs and so Question C.ii) was well answered. However, most students struggled answering how Dutch book occurs. The correct answer is that you give the scenario analysis to show the agent always lose money with the given betting prices. The common mistake is that both how and under what condition questions were answered in the same style: because the designed betting prices do not from the probability distribution, Dutch book occurs. But this is a incorrect answer to how type of question.

• Question d). 2/3 students answered this question correctly and completely. The other 1/3 students did very poor and shown no clues how to answer the question. The difference suggests the different level of preparation for the exam: the well prepared students did very well and the poor prepared students did poorly.
There were lots of good answers, but also some very poor answers which could not have been based on much revision. Parts (a) and (b) were pretty straightforward and well answered by many people. Part (c) is a bit more complicated than it looks and quite a number realised this. The reason why TCP is not ideal for VoIP is not that it is always too slow. If there are no lost or damaged packets, TCP could be made to have about the same delay as UDP and RTP. But its acknowledgement and retransmission mechanism is not appropriate for VoIP as retransmissions are likely to be too late to be useful. For VoIP, the acknowledgements are unnecessary and just add to network congestion. But worse, a lost or damaged packet could cause a hold-up in subsequent packets being delivered to the application layer at the receiver. The receiver would wait for the retransmitted packet to be received. It has to if you think about it. So here is the hold up and the reason why the mechanism is inappropriate for VoIP.

(d) UDP and RTP introduce less delay than TCP only when there are lost or damaged packets. This is because they just do not incorporate the ack-retransmission mechanism of TCP which is not useful for VoIP anyway.

Steve Pettifer: Question B2

a) This section was generally well-answered, though numerous students described the behaviour of a cache in a CPU, rather than in a distributed system. This was not penalised as long as the general properties of a cache were also described.

B) Generally well answered, though many answers only included ONE example, whereas for full marks TWO distinct examples were required

c) Answers for this question were either very good, or entirely wrong!

D) Again, many marks were lost by giving only one example of introducing state into a stateless system; typically the examples used were sensible and well described.

E) Many confused the concept of "contention for a resource" with "deadlock". Contention for a resource is a necessary but not sufficient criterion for deadlock.

F) The problems with timeouts were generally well described.

Alvaro Fernandes: Question B3

This question was taken by 102/189 = 54% of the students. The average was 64.1% with a standard deviation of 28.0. So, it proved an easy question, but the distribution is tending to bimodal (while many students did extremely well, quite a few did very badly).

There were no major problems. All parts were answered correctly by a great many students. It was refreshing to see that many students had excellent answers that took innovative viewpoints when there was room to do so (e.g., in the first two items).

The question on whether the smaller the chunk the better was the only one where many people lost marks for failing to consider whether overheads play a part.

In contrast, the question on whether partitions with different size on equi-capable machines lead to optimal outcome was answered very well by most students.

Some students confused migration and relocation transparencies, but this was compensated to the extent possible. One minor flaw here was that many students failed to explain (e.g., give an example) as to why one of them is harder.
NOTE: BECAUSE OF THE FEEDBACK MECHANISM REQUIRED FOR (UG AND PGT) EXAMS and COURSEWORK - IN LINE WITH UNIVERSITY POLICY - EACH Issue WILL be Explicitly Enumerated – AND HENCE PROVIDE PERTINENT [STUDENT] FEEDBACK.

Note issue 1: First point is the exam scripts showed you [this year’s student cohort] has been one of the best student groups undertaking the course – well-done...

Note Issue 2: Generally – in your answers – there were not enough diagrams. Remember diagrams can illustrate points paragraphs [and text] cannot...

The following goes through each question providing student feedback.

1.a) Well-done, most students managed to draw [up] a block diagram of four components [as requested]; then labeling them correctly; then adding size and speed meta data [correctly]. Some however did not; either:
   1.a.1: Draw the diagram at all; and / or
   1.a.2: Others got the meta data with respect to the numbers or units of numbers wrong; either the numbers were wrong or the units of the numbers.

1.b) Great [mostly good answers], the majority hit on all the main points in their answer; main points you should have mentioned were: 1) runs different programs, 2) under user control, 3) I/O, 4) norm PC. Others were not able to name all the [majority] issues [required].

1.c) Good, many of you got full marks – well-done, but some did NOT cover the important keywords [in their answer] for example: 1) ROM (non-volatile), 2) OS, etc [see answer]; [the keywords cannot be inferred]. The odd person [student] knew none of the salient facts. Some did not know where the program was stored.

1.d) A lot [relatively] of people [students] did not know the answer to this at all. Keyword you should have used in context was 'time-sharing.' Also, a concise and complete list of salient explicit facts explaining what and how time-sharing was and how it operation. Some did [roughly] explain what it was (time-sharing) [how and what]; but they did not explicitly know the correct naming convention(s) [to utilize in their answer].

1.e) You either knew this answer or you did not; it appeared to be that black-and-white; only two keywords were required here, {the keywords cannot be inferred}; see answer.

1.f) Good [answers], most of you were happy answering this question [correctly]. In answering this question you should have used keywords [such as]: 1) volatile – losses content – when power removed, 2) non-volatile – keeps content – [when] power removed, [the keywords cannot be inferred]. Also you should have noted down: 3) volatile – used for ‘secondary memory,’ 4) Embedded sys. ‘require’ non-volatile – see answer.

1.g) Well-done most [of you] knew all three [keywords]. Generally, you had to know all three keywords, [the keywords cannot be inferred] + a brief description of each, to get full marks. This was the first time you could [should] have used bullet points [to write down the three] – some [students] put the three items into one paragraph – which may not have been an optimal way to lay out your answer – the best way was bullet points, to enable the three different bits of information to be easily delineated [visually]. Some single paragraph answers were very hard to decipher – understand what they were trying to say – or find the correct answer in the paragraph. Some [students] could only name one or two [keywords] (but not 3) and hence these were marked down.

1.h) Ah, a number of you were confused here, if you are not sure about the issue this question address have a look at: 1/ the lecture notes [they cover this], 2/ books [as this is where the lectures were derived]; as your definitions were not always correct, concise, or used the technically correct naming conventions. Specifically [some of] the keywords you should have used in your answer [to obtain full marks] were: ‘wide physical area’, ‘physically remote areas’ for example Manchester to Landon, (the keywords cannot be inferred). Some of the answers given were not allocated marks because of the issues covered above. To be explicit see lecture 8, this is the lecture that is pertinent to this issue.

1.i) Very mixed bunch of answers here, some good some not so… In your answer you must make it clear that:
   1.i.1. Bridge:= connects similar networks – no changing protocols;
   1.i.2. Router:= connects different networks – includes interchanging protocols.

Some of the answers given did not give clear answers; which did not explicitly address 1.i.1. and 1.i.2. at all. Good use of diagrams; those that used them...

1.j) Ah, one of the issues that may have held you back hear; was the need to be able to perform long division here [in this answer]. Basically, a number of you did not [correctly]
calculate the second step of the sequence of calculations – for example performing the calculation “1/75 (seconds)” – which requires you to undertake a [long] division \( \frac{1}{75} \) ~1.000. Remember the explicit long division methodology [steps, procedure] are explicitly highlighted in lectures 9 & 10 [on Blackboard]. Some of you, also, missed out the [SI] units for each stage...

1.k) Generally, most [students] were able to full answer this [question]. Some did not answer part ii, explicitly, or concisely; hence did not get full marks. You could have used a diagram in this answer to better explain the issues...

1.j) Most [students] gave good answers, some wrongly named one, and did not explain concisely what each was [explicitly]; so full marks were not awarded.

1.m) Generally, good answers given. Again full marks were only awarded if specific keywords were utilized [in the answer] in context; for example human-readable, executable by computer etc, (the keywords cannot be inferred), see template answer...

1.n) Generally, most [students] attempted this long division application question and correctly calculated the result. Some did not use the stated [in the question explicitly] ‘repeated division’ process in their answer; hence marked down – remember this [the ‘repeated division’ process] was explicitly covered in the lecture...

1.o) Most [students] were able to write down 1: the formula to utilized; and 2: substitute values in this formula; then 3: perform calculation. Some, did, however, get the [SI] units wrong: e.g. Mbytes!, Kbytes!, mS!! See template answer for correct process [steps] and [SI] units.

1.p) Ah, very context sensitive this answer + specific [technical] knowledge required for this one. Some did not quite comprehend the complexity [of this question], and the need to give precise salient facts when they answered this [question]: see template answer. The odd student gave cogent and concise answer, well-done if you did...

1.q) Again this may be the case that either you knew this [answer] or you did not [know the answer]. Those that did tabulate it (the answer) [correctly] did answer the question well; and received full marks. See the template answer if you were not sure [of your answer].

1.r) This question was straight out of the lectures. Some were happy explaining the concepts here, other were not. For full marks you had to draw up the table correctly. If you are not sure of this one: 1/ see template answer, then see lecture notes...

1.s) The norm hear, was that if you drew up a good comprehensive description [in your answer] of the calculator you obtained full marks. However, some answers had far too little details, and did not show [a] full understanding of what it was, what it did, what it displayed etc.

1.t) Very few actually got this wrong – well-done all. Most got it exactly right; see template answer for full calculation process + see lecture notes.

2.a) Well, those that did take on this question gave moderately good answers – well-done. However, marks were lost for not explaining in detail [the concept] and not utilizing specific keywords [the keywords cannot be inferred] [see actual template answer] that showed the student had deep knowledge of the issue [addressed here].

2.b) Some gave moderate answers – but the crux of the required answer was highlighted in the question – explicitly the question used the keywords: “Explain in detail…” “why … utilized…”, & “all functionality they provide…”, {the keywords cannot be inferred}. If you did not explicitly cover [address] each of these issues concisely and in-depth – as specified in the question – marks were not awarded.

2.c) Attempts were made at answering this question. But, if the answers were not correct with respect to naming both types of switching modes correctly marks were not awarded. Marks were also not awarded if only a few of the [may] points covered in the template answer (with respect to technical description) were address by the students answer(s).

2.d) This could have been a good application question if you remembered [what] FSK modulation actually was. If you were not aware that a ‘1’ interpreted as a low frequency
carrier [waveform] and a ‘0’ a high frequency carrier [waveform] – you were not awarded the marks; see template answer.

2.e) To get good marks for this question you needed a: good diagram, and name the subcomponents and added meta data about the subcomponents [sub-blocks]. If all the details, all the names of the sub-blocks were correct and all the meta-data was correct full marks were awarded – see template answer – if not full marks were not awarded.

3.a) To obtain full marks for this question you needed to explicitly cover [all] the following issues:
1: Know the correct formula to utilize;
2: Substitute the correct values into the formula; then
3: perform the calculation correctly.
If you did not do all three (1: to 3:) steps correctly full marks could not be awarded.

3.b) As per question 3.a. you needed to fulfill points [steps] 1: to 3: to obtain full marks; any inconsistencies and marks were not awarded.

3.c) This question addressed three explicit issues with respect to reading and writing multiple bytes. Each is explicitly explained in the template answer [and lecture notes and textbooks] - if the student’s answer did not address the explicit issues – marks could not be awarded – as students answer did not align to template [specimen] answer.

3.d) If attempted, specific keywords were required in the answer, {the keywords cannot be inferred}; as stated in the template [specimen] answer; which were in context and showed a deep understanding of the issues in question.

3.e) This question is similar to 3.a and 3.b in that it requires the student to undertake steps 1: to 3:. If these were [all] not undertaken correctly full marks could not be awarded – as students answer did not align to template [specimen] answer.

4.a) Some [students] did get the correct answer. Others did not comprehend the question – explicitly the keywords: ‘element’ and ‘hold’, {the keywords cannot be inferred}; used in the question. See template answer.

4.b) To get full marks you needed to name and fully explain two keywords: ‘data’ and ‘instructions;’ {the keywords cannot be inferred}. You also had to explicitly explain the difference. If you did not do both – to the required level of detail – marks could not be awarded – as students answer did not align to template [specimen] answer.

4.c) Again, according to 4.b. you [the student] had to have keywords ‘data’ and ‘instructions;’ {the keywords cannot be inferred} in their answer. And explicitly state: “No, difference...” – see template answer for full answer. Fuzzy or imprecise answers were marked down – only precise answers were awarded full marks.

4.d) Ah, some [students] were able to answer the [question] fully – well-done. Others did not use the necessary [prerequisite] keywords: ‘address’ [of next] ‘instruction,’ in the correct context. See template answer – implicit [non-technically correct] answers were marked down.

4.e) The question requires application of your LMC programming language knowledge – which were explicitly explain in the lecture series. These type of application questions were explicitly explained in the lecture series and in the questions at the end of each lecture – the question required you to tabulate a set of columns that included, columns named, mailboxes, and calculator [that is in the lectures ‘in box’ and ‘out box’ were required – but not in this question, though you were not marked down if you included them – or awarded extra marks...]. So if you had understood the lectures and undertaken the questions [examples] this was a relatively easy question – some of you got this completely correct [well-done] – other did not...

4.f) Most were able to write [down] the mnemonics and comments down correctly – well-done. Those that did not – may not have studied [revised] similar programs [presented] in the lecture series, examples and past papers. The students that were marked down made algorithmic and mistakes in the comments and even added non-valid mnemonic like ‘LDA,’
which are not part of the LMC’s instruction set! If you overwrote the program with data – you were also marked down – as this is defiantly not done [at all]; none of the examples in the lectures or examples do this – except one, and this examples explicitly states “It will not operate correctly …;” though this may not be the case in your programs – but the point is it is not the norm to overwrite a program with data and this approach [algorothmics] are the wrong way to code.

5.a) Well-done all those whom correctly answered this question; and, again, this question required the approach laid down in 3.a 1: to 3:. If full working was not included marks were deducted. It was started explicitly in the question “To gain full marks you must show full working.”

5.b.i First point to note here is it states plainly in the question “… [convert] to 8-bits …” – hence if you did not produce an 8-bit number in your final answer you were marked down. However, most people were able to do this question.
5.b.ii This one was straight out [the process] of the lecture notes, questions at the end of the lecture notes and past exam papers. So, well-done all of those that got this totally correct, as this was ‘application’ of your knowledge – which you demonstrated admiringly. Some of you made mistakes in the calculation – which could have been checked – so if answer was not totally correct marks were deducted.
5.b.iii Well-done most of you [that] answered this, correctly. Again, you should have used your knowledge and applied it. However, we did highlight in the lectures and tutorials the full process – full working was required for these types of questions; if you did not have the full workings you were marked down – as you were told in lectures and tutorials…

5.c) Most of you succeeded with this question – well-done. See template answer for full working required to obtain full marks.

5.d) Most of you [correctly] wrote several paragraphs explaining the theory behind RAMs – well-done. Some had few [key] words and did not show great depth of knowledge [deep understanding] – so could not be awarded [full] marks.

5.e) You needed to differentiate here clearly. If you did this well – full marks were awarded – if not they were not.

The following feedback table lists the most frequent issues that came up while marking the scripts. They are delineated [or enumerated; or ranked] in importance [or the number of times this issue occurred] using the term ‘Frequency of occurrence of feedback issues in student’s work.’

Specific Exam Feedback Tabulation

Feedback is given as a set of characters that relate to [explicit] specific feedback [sentence] below; focusong on specific issues: {a, h,…} implies the feedback applies to a specific question.
Frequency of occurrence of feedback issues in student’s work
Frequency of occurrence KEY: VH=Very high occurrence, H=high ..., M=moderate ..., L=Low ..., VL=Very low ...

Point Details
General more explicit salient facts please…VH
General Could have used a drawing (diagram) [here] plus description of diagram…VL
General answer must address the question more explicitly…VH
General more usage of correct terminology (keywords and naming conventions) please …VH
General No answer given, hence zero (0) awarded…H
General No clear evidence of knowledge of required salient facts evidenced in answer…VH
General differences not explicitly stated…H
English/Grammar: require a detailed natural English description of the concept (and/or process or protocol) undertaken.VL
English – Require good plain English paragraphs – well structured.VL
English [Description] A comprehensive introduction, overview, or detailed description of the topic (required).VL
Table(s) – could be laid out better – making columns [Heading(s)] more explicit.VL
Layout Questions and Answer subcomponent LAYOUT should be (more) explicit…M
Mathematics bounds of number could be made more explicit…VL
Mathematics / Calculations incorrect calculations [correct calculation(s) required]…M
Equation(s) requires a set of equations and specific formula relating to the question…M
Equation(s) laid out in more readable format pleaseM
Equation(s) / Formula incorrect formula utilised…VL
Equation(s) / Formula explanation required please…VL
Diagram(s) labelled explicitly all components in diagram please…M
Diagram(s) a fully annotated set of diagrams to enhance the detailed natural English description of the topic.M
Readability Please write using large characters; the written answers are hard to read [going towards unreadable!] VL
Mathematics requires a value to be calculated [using specific equation].L
Reference Learning Resources, Background Reading, and Lecture itself for detailed information; Lecture No.:N.A.

Explicitly state the values of all registers used for each instruction line (step) … pleaseN.A.
More verbose, elaborate, detailed – clear description of the movement of information; for each step… pleaseVL