Examination Tips for Mathematics TEE Papers

- Read questions carefully. Many students misinterpret questions or don't take note of important information like "show working" or "exact answers" or "give your answer to the nearest $1000". Students need to make use of hints. Watch out for the tricks. Sometimes questions are asking more about what you don't know rather than what you do know.
- "Questions answered without supporting reasoning will not gain full marks." You must show sufficient working even if the question does not ask you to show working. Take note of the marks. If a question is worth three marks then it is likely to contain 3 steps. You should show at least three steps of working or justifications.
- Expect to be asked to justify or prove your answers. You will be asked to comment on why you obtained that answer or comment on the accuracy or reasonableness of your answer. You may be asked to generalize your answer further or comment on how your answer may vary if constraints were changed. The introduction of graphic calculators has further enabled a greater number of questions to be more "process" orientated rather than the "functional" mathematics. This is more difficult because now, greater than ever before, you are asked to demonstrate your deep understanding of mathematics in varying contexts rather than just being asked to "do the mathematics." TEE maths students will always find these to be the most challenging questions in the exam.
- You need to be able to round correctly and give your answer to an appropriate number of decimal places or significant figures. Precision is quite often implied or stated in the question and ignored by students. Wasted marks if they are lost because you gave a money answer to 3 decimal places or gave a correlation coefficient to just 2 decimal places. Find out from your teacher the precision rules for each topic. If in an exam you get confused then usually it is better to give more decimals places than less.
- Use correct notation and setting out. For example us { } brackets with sets or correct notation with normal probability etc.
- State any assumptions made, define variables and state important information like which probability distribution is being used in Applicable Maths.
- Clearly indicate your answer with underlining or highlighting. Cross out incorrect answers and demonstrate clearly your answer. For example show the Flow on Maximal Flow question in Discrete Mathematics.
- You cannot "hedge your bets" and give more than one answer if you are not sure which one is correct. This will result in no marks been awarded.
- Correct answers given with incorrect working will mean most or all of the marks will not be awarded for that question.
- Know your basics like "what is a prime number or an integer?" , "Do I understand BIMDAS?" etc.
- Don't forget your units your use the wrong units.
- Mathematical Literacy is essential. Know what words like conjecture, Fibonacci, consecutive, augmented matrix, extrapolate etc mean. Keep your mathematics' journals up to date and include a glossary. Know the maths Lingo. Maths has a unique literacy you need to know and yes "English is an important part of maths." Make sure you use correct spelling and grammar.
- Label Diagrams and graphs. Use appropriate scales for axis on graphs and titles where appropriate.

- Know how to use your graphic calculator and what to do if something goes wrong and it needs to be reset. Make sure your settings are correct. For example if you are doing Calculus your calculator should be in radians mode rather than degrees mode. Your graphic calculator is a tool and needs to be interpreted. For example. If your calculator displays an answer as 1.23 E9, then you need to write $1 \cdot 23 \times 10^9$ not 1.23 E9. Your graphic calculator is a powerful and useful tool but it cannot think or reason. Your brain is infinitely more powerful. Make good use of your graphic calculator but don't rely solely on it.
- Write legibly and clearly. You are expected to write in pen and complete diagrams in pencil.
- Think about your exam technique. Use your reading time wisely. It is the most important ten minutes of your exam. Plan your strategy in this time. Do the questions you can first. Read the questions carefully and think about them. Keep an eye on the clock. A mark a minute. Don't use any correction fluid.

Exam Preparation

- Use your classroom time wisely. Work hard and ask questions about *anything* you don't understand. Listen to your teachers.
- Be vigilant about understanding "why things work" not just "how to do" questions.
- Don't underestimate the power of "getting it out on your own." Results in a greater understanding and better memory recall.
- Working backwards from the answers to questions that you can't get right can be a useful technique but it should be used sparingly.
- Complete your homework. If you have completed all your set homework early then you should take advantage of this extra time to revise, consolidate and read ahead.
- Don't allow yourself to fall behind. You should be doing Mathematics homework every night of the week and at least one session on the weekend.
- Design a revision timetable at least six weeks before your exam. This way you can do a little revision each night over a long period of time. Try not to cram your whole course revision into the week or nights just before the exam. This requires discipline and effort but the results are worth it.
- Make sure you revise all topics. Spend more time on the earlier topics that you may have forgotten or the topics you find most difficult. Don't just study what you can do.
- Try and do as many past papers and problems that you can. Practice, Practice, Practice.
- Seek help if you can't do something no matter how trivial it might be.
- Keep trying. Don't give up on difficult questions. If you can work things out on your own then you will develop a greater understanding and a better memory recall for examinations. You will also achieve mathematical ecstasy. You can always come back to a question later and try again.
- Carefully prepare *your own* two A4 sheets of paper that you will take into the exam. Don't use somebody else's. Type them up on a computer so that you can fit more onto them and you can easily edit and modify them in the future. Start these sheets now and prepare them as you go. Be warned that you shouldn't have to rely too heavily on these pages in your exam.
- Try working under exam conditions. Time yourself. Mark the questions you are practicing. Be prepared. Organise your tables book, graphics calculator, spare batteries, Math Aid, A4 notes, pens, pencils etc well before the exam.
- Get a good nights sleep before the exam.

- Spend some time on stress management if you "freeze up" in exams. If you "freeze up" in exams or keep thinking "we haven't been taught this", then ask yourself the question "Do I really understand my maths or am I just trying to survive and learn how to do different questions without really knowing why things work" Remember exams will contain new questions in different contexts to test to see if you understand your maths.
- A rigorous and well organized study program takes effort and discipline but it does wonders for ones confidence.
- You can only do your best. Are you giving of your best?

GOOD LUCK AND MAY YOU ACHIEVE MATHEMATICAL ECSTASY !!!!

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