After Test Review – TOM MSQ2

Review Q1: Very basic and easy question, right. Best way to determine whether springs are in parallel or not – Give a deflection to the mass, if the deflection of the springs are same as the deflection of mass, they are in parallel. Simple enough!

Review Q2: This question provides an alternate approach to solve vibration equation for critical damping. Though it is not a very TOM related concept but you should know that when roots of Vibration Equation are real and equal, then it is the case of critical damping. So, doing b^2 = 4ac is also going to give you the same result.

Review Q4: Very basic yet very important learning. In such questions of vibrations, ALWAYS scan the question once and see what the different masses are given in the question, whether question has given just the mass m, or the mass of pulley, or rope, or some other rod, etc.

Why do so? In vibration equation you have to consider **MOI of all the given masses** which are doing motion. Missing anyone would be a mistake! Also make sure that you calculate the MOI of each of them about the point of rotation only. It is highly recommended that you should know the MOI of standard bodies beforehand so that you can directly use the values (or apply parallel axis theorem accordingly). This tip is more crucial for those who did not pay attention in Class 11th mechanics.

Review Q5: I am sure those of you who knew what is going on in the question, enjoyed it. It is a very easy and basic question, yet very difficult for those who are unable to figure out how to proceed. Some of you might have started thinking that they need to learn more in TOM.

There are 3 types of behaviour possible in this question: First those who knew what to do, second those who did not know what to do but they made some attempts and solved it correctly and third those who did not know what to do and scared from making and attempt

and skipped it. Look. Almost every question in GATE can be solved if your basics are clear. Keeping the panic aside, **make an honest attempt on the basis of what you know**, rest is easy.

Review Q7: It is not a question which is very likely to be asked in GATE, but let me tell you some **good learnings** you can get from this question -
1. Drawing Turning Moment diagram for multi-cylinder engines.
2. Clear interpretation of fluctuation of energy from the graph.
Other than this, you may also notice that whether you consider shaded part and total energy for one peak or for all the 3 peaks together, answer will be same.

Review Q8: It is recommended to learn two graphs in Governors. First is the one given in this question and second between slopes of controlling force and speed curve.

Review Q9: One possible silly mistake is this type of problems is that you might confuse which side (vertical or horizontal) in crank level was *a* and which was *b*. Always **remember this formula with the respective diagram**. Though in this question, since a = b, so this silly mistake was avoided automatically.

Review Q11: This is not a question which is very relevant for GATE but we just wanted you to learn this mathematical relationship between pressure angle, steepness of curve, base circle radius and displacement of follower, so that **you can answer any theoretical question** asked about the relationship between all there variables. Just remember the formula and you are good to go! (-ː)

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