Need for ‘open book’ approach in tech exams on campus

Think of campus selection in educational institutions and the first thing that comes to mind is a ‘Technical Exam’. The two most prominent scenarios in the campus selection scene are:

Scenario 1: An IT company recruiting non IT graduates
Scenario 2: A Manufacturing company recruiting graduates with no manufacturing knowledge.

The assumption in both these scenarios is that – “If you’re good in the core subjects or topics, you’ll certainly do well on the job”. When it comes to determining the competency levels of a candidate, a ‘technical exam’ is the acid test that most organisations put the candidates through.

Many clients believe that they should develop the question paper themselves and not outsource it to consultants. They believe that the subject matter experts within their organization are the most competent people to do the job.

What happens on the shop floor however, in most cases if not all, is the delegation of this task from the top to the bottom of the hierarchy. If the ‘plant head’ for instance, is considered as the subject matter expert in a given technical domain, he or she delegates the task to the HOD of various departments like the mechanical, electrical etc, owing to time constraints. They in turn pass it on to the junior executives or interns who do not have more than two years or so of work experience.

The result of such an exercise happens to be that the ‘technical exams’ turn out to be nothing more than an average memory-testing exam. Take any technical question paper of the day and you will realize that it tests nothing but one’s memory. If one can recall a set of about 25 or so of the most commonly used formulae, then passing technical exams is a cakewalk.

This is evident in the fact that the most common approach to preparing for on-campus technical exams is the memorising of all commonly used formulae in the subject or domain in contention.

In one instance, when the people conducting one such technical exam were asked, “what are you measuring?” they said – ‘chemical engineering’. Is such an approach truly fruitful then?

In reality however, as in practice, shop floor managers do not want or allow or even encourage employees to recall formulae from memory. It is usually advised to check the formulae from the concerned book or source because errors can prove fatal and costly.

In essence, it is the application of a formula and not the formula per se that is important.

So, the question now is - 'If the book is prioritised in practice, why is memory prioritised in tests?

Ideally, the candidates must be given the most critical or the most relevant formula from the lot and asked to test the boundary conditions. This does not happen by recall but by an open-book approach where the candidate has access to the subject matter and all that he or she has to do is apply it to solve the problem at hand.

In other words, open book approach tests application.

Therefore, we have a strong case for open book exams.

Another flaw in the existing ‘technical exam’ approach is the fact that, when subject matter experts like the heads of departments of various technical departments of organisations set question papers, they tend to recall from their own areas of expertise rather than what the need of the hour is. They tend to overlook the current state of affairs.

The questions asked in the technical exam might pertain to a new machine installed two years ago on the shop floor, which a new entrant in the company might not be exposed to. To be just to the candidate, such machines might need sufficient exposure or handling to master.

Therefore, the questions asked, should be based on what the candidate needs to know at the time of entry and not what he or she needs to know two years down the line.

So, how do you set these questions?

An ideal approach would be to

1. Define the task / work that a candidate is expected to do in the first two years of his or her stint
2. For each of these tasks, list the scientific or the engineering principles that a candidate needs to be well versed with
3. Test the candidates for their knowledge, awareness and implementing ability of these principles

If critical aspects like the ones mentioned above are not looked into and improved – on the one hand, competent candidates will be missed out due to the false understanding that they are not competent enough and on the other hand, incompetent candidates will be selected due to a false understanding that they are competent.

We wouldn't be far from reality to claim that it's about time to wake up to the calls of the 'open-book' exam approach.

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