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NATIONAL FOCUS GROUP

ON

EXAMINATION

REFORMS

2.5

POSITION PAPER

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ON

EXAMINATION

REFORMS

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NCERT

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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EXECUTIVE SUMMARY

"Education is not the filling of a vessel but the kindling of a flame."
— *Socrates*

Summary of key recommendations of the Focus Group on Exam Reforms **on structural and procedural change**. To be read in conjunction with its recommendations on reducing stress and anxiety among students. (Please note that some of the recommendations below – especially 1,2,4, 7 and 10 — also address the problem of student stress, anxiety and suicide.)

1) Institutions in each field (e.g engineering, law, medicine) co-ordinate with each other and design *one* entrance test applicable across the nation. A nodal agency at the national level is proposed for co-ordinating the testing schedule, ensuring security, and monitoring the timely release of rank-lists. This nodal agency should not, we emphasize, attempt to frame or grade the tests themselves.

2) Under no circumstances should board exams be extended to other grades such as the 11th, 8th and 5th – and news that some state boards have initiated such exams cause us grave apprehension. **Indeed, it is our view that the tenth grade board exam be made optional forthwith.** Tenth-graders who intend continuing in the eleventh grade at the same school, and do not need the board certificate for any immediate purpose, should be free to take a school-conducted exam instead of the board exam.

3) Now, with computerization of registration and grade reporting it is possible to present a wider range of performance parameters on the marksheet – absolute marks/grades, percentile rank among all candidates of that subject, *and* percentile rank among peers (e.g. schools in the same rural or urban block.) The last parameter, in particular, we believe to be a crucial test of merit. Making this information public will allow institutions of higher learning to take a more complex and relativist view of the notion of merit.

4) Requests for re-checks have declined dramatically in states like Kerala, Gujarat, J & K and Karnataka which have given students access to their answer papers (at a charge, of course) in either scanned or Xeroxed form. We laud the efforts of these and other states to make their systems more transparent. One can also be fairly sure that the more casual examiners in these states now do their job more diligently. Greater transparency breeds more accountability. We strongly recommend that all other states fix their systems to provide such access to students, on request, at reasonable (but not subsidized) cost.

5) The practice of forcing teachers to examine is highly unlikely to lead to good examining and should be abandoned forthwith. Furthermore it should be recognized that all good teachers

do not make consistent examiners and *vice versa*. If boards pay examiners better – and we recommend a rise in daily wage from the low Rs 100 or 125 per day by a factor of two or three here, not 10% or 20% more – and weed out poorly motivated examiners many of the core problems will get solved. Given that most state boards in India are in very good financial health — one small Northern state even boasts of an accumulated corpus of 84 crores – finding the money should not be problem.

6) Paper-setting needs drastic reform. In fact, as has been successfully tried in Maharashtra (though for reasons of security rather than quality) the focus should shift to *question*-setting from *paper*-setting. It should not be necessary that individual questions are written by experts. Good questions should be canvassed around the year from teachers, college professors in that discipline, educators from other states, and even students. These questions, after careful vetting by experts should be categorized according to level of difficulty, topic area, competency being evaluated, and usage and testing record, and drawn on. After a question has been selected and used in a paper the question-writer should be suitably rewarded.

7) a) Most real life tasks today, in most professions, call for the ability to ACCESS information, SIFT AND EVALUATE it (for there is a lot of chaff), SORT it and ANALYZE it. These skills can be tested through well-designed multiple-choice questions (MCQs) with plausible distracters. The ubiquitous "short-answer" question usually does not do more than test recall, and can be replaced with good MCQs. MCQs have several other advantages over "short answers":

1) They can be machine-marked, hence are entirely "reliable" and very quick results are possible

2) Copying problems can largely be eliminated by shuffling of question numbers

3) Extensive syllabus coverage is possible due to the brief time needed per question

Karnataka DSERT reports lower student anxiety levels, higher pass percentages, and lower urban-rural score disparities where MCQs have been tried extensively in recent years and now comprise upto 60% of secondary exams.

b) Skills of PRESENTING findings coherently, integrating them into a persuasive argument, and APPLYING them to real-life problems are also important. They are best evaluated through essay responses to open-ended questions in languages and the social sciences, and through tiered problems in sciences and maths. The relevant data/ primary source/ passage should be provided in the question paper.

8) By protecting the identity of candidates and examiners from each other a lot of post-exam malpractice can be checked. Maharashtra has successfully implemented a system of encrypted barcodes which hides the identity of the student (and the school) from not only the examiner but also exam board employees. When this is used in conjunction with another method which many

states already adopt – randomizing of exam scripts given to any particular examiner – malpractices at the level of the examiner becomes far more difficult.

9) A major source of cheating remains help from outside the exam hall, sometimes even through ingenious means such as mirrors and drums. If candidates are not permitted to leave the exam-center in the first ninety minutes, and even thereafter not permitted to carry out question papers with them most of this can be nipped in the bud. Knight errants on the outside simply would not know what questions to provide answers to.

10) A sensitive teacher usually picks up the unique strengths and weaknesses of students, one should utilize her insight in assessment and empower her, by empower the system of internal assessment. At the same time, to prevent its abuse by schools (as is currently the case in practical exams) internal assessment must be graded on a relative, not an absolute, scale and must be moderated and scaled against the marks obtained in the external exam.

In conclusion, it should be said that the above reforms would, belatedly, usher us into the mid or late-twentieth century, but hardly the twenty-first. In the long term (about a decade) we envision a vastly different system built upon entirely new foundations. This system would actually make the teacher the primary evaluator of her students. This system would not be one-shot but continuous; would extend beyond the cognitive domain and beyond pen and paper; and, hopefully, be seen by all not as a burden but as a tool for further learning. In this system the primary role of boards would change radically – from direct testing at present to rigorous validation of school-based, teacher-based assessment. If any direct testing by boards were still to be needed it would be of a very different type — optional, open-book, and on-demand.

The following pilot programs would provide us valuable data before the long-term changes envisioned above can be implemented. Some are listed below:

Pilot I: Already initiated in Karnataka, to move toward 60% or more of all exams toward the MCQ mode.

Pilot II: Already existing in Turkey.

A minimalist end-of-school exam. One three-hour 150 MCQ exam covering all subjects studied.

Its sole purpose is to validate the school-given exam grades and to raise/lower them by a moderation factor.

Pilot III: Open-book exams, and source-analysis based assessment.

Pilot IV: The exam system must gradually move toward on-demand exams (they are usually done on-line, internationally) taken when the candidate is ready; rather than at the convenience of the system. We suggest a small beginning of this in computer science exams as a pilot project and its future expansion to maths and physics exams.
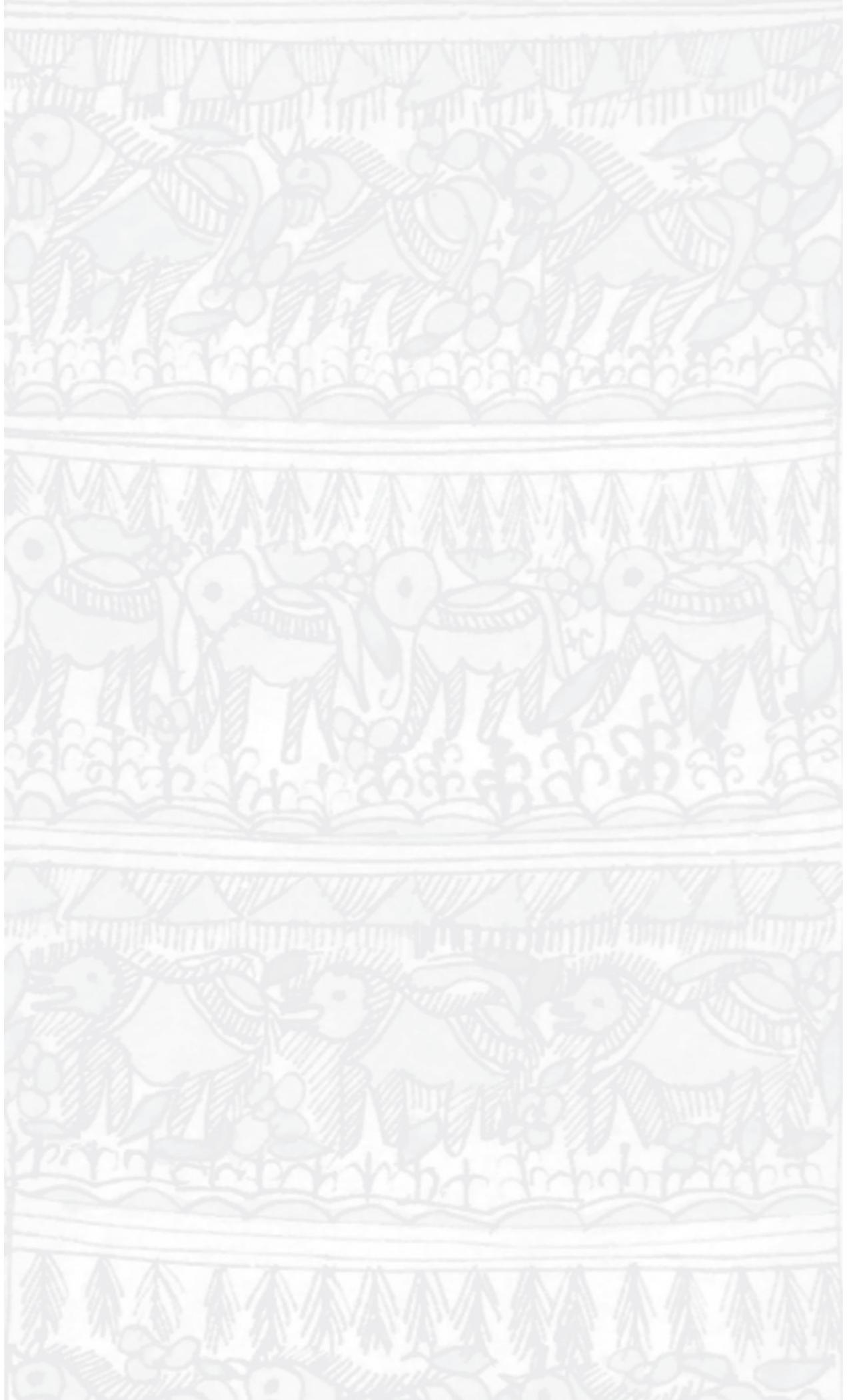
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1. INTRODUCTION

1.1 Exam Reform: Why is it needed?

a) Because Indian school board exams are largely inappropriate for the 'knowledge society' of the 21st century and its need for innovative problem-solvers.

b) Because they do not serve the needs of social justice.

c) Because the quality of question papers is low. They usually call for rote memorization and fail to test higher-order skills like reasoning and analysis, let alone lateral thinking, creativity, and judgment.

d) Because they are inflexible. Based on a 'one-size-fits-all' principle, they make no allowance for different types of learners and learning environments.

e) Because they induce an inordinate level of anxiety and stress. In addition to widespread trauma, mass media and psychological counselors report a growing number of exam-induced suicides and nervous breakdowns.

f) Because while a number of boards use good practices in pre-exam and exam management there remain several glaring shortfalls at several boards.

g) Because there is often a lack of full disclosure and transparency in grading and mark/grade reporting.

h) Because there is need for a functional and reliable system of school-based evaluation.

Each of the above points is elaborated below, in separate sections, with specific recommendations for change pertaining to each. Some recommendations are called for on more than one of the above counts, and this is noted. We have also generally avoided write-ups on issues which fall squarely in the domain of other focus groups. While this report will be frank in its critique, it will avoid bland generalizations and arid theorizing, and focus on concrete proposals for improvement. It will also avoid cluttering the recommendations with cross-references to earlier suggestions for reform: reminders of unimplemented educational reforms have long ceased to embarrass the powers that be.

1.2 Exit versus Entrance Exams

We should outline at the outset one criticism of board exams that we regard as unfair. Board exams (especially at the twelfth grade) are often criticized for not adequately serving the selection needs of the next level of education; and the blame for the recent proliferation of entrance exams (and for the 'coaching classes' that claim to prepare one for them) is often laid at their door. This critique arises largely from confusion about the purpose of board exams. Board exams are, and must remain, 'exit' exams—whose goal is, and should be, to certify the successful completion of a course of study. (That this certification should be of attained competencies rather than memorized content as at present, while true, should not distract us from this fact.) Board exams are not, and should not be, designed as 'entrance' exams for professional courses, vocational streams, or whatever. The needs of these post-higher-secondary courses are specialized in nature and require particular proficiencies and aptitudes. Board exams, on the other hand, are designed to test a broad spectrum of learning considered to be essential by the framers of a common curriculum and to certify its completion. The two roles are essentially different. The IITs, the National Institute of Design, law schools, et al will design tests to do their job;

board exams will do theirs. There is no need for competition between the two. Nor should one set try to replicate the other.

The only plea one can make—and we make this forcefully in order to reduce student stress and fatigue—is that institutions in each field (e.g., engineering, law, medicine) co-ordinate with each other and design one test applicable across the nation. Requiring a multiplicity of tests for the same professional stream merely adds to students' stress and is in no one's interest—with the possible exception of coaching classes. We propose a nodal agency at the national level for general co-ordination, preparing the testing schedule, ensuring security, and monitoring the timely release of rank-lists. Getting different end-users of tests to agree on a common core syllabus for each entrance exam should also be part of its function (and this would further cut into the coaching class business). This nodal agency however should not, we emphasize, attempt to either frame or grade the tests themselves.

2. THE LONG-TERM VISION FOR EXAM REFORM

Finally, it should be noted that what we recommend below are short-term and medium-term improvements to an exam system whose roots lie in nineteenth century colonialism[1]. Ironing out its flaws will bring us, belatedly, into the mid or late-twentieth century, but hardly into the twenty-first. In the long term (about a decade), we envision a vastly different system built upon entirely new foundations. This system would not just pay lip service to teacher empowerment but actually trust him/her to be the primary evaluator of her students (while building in safeguards such as external moderation and scaling by boards). This would also not be a one-shot measure but a continuous process. It would extend beyond the cognitive domain and beyond pen and paper, and, hopefully, be seen by all not as a burden but as a tool for diagnosis and further learning. In this system, the primary role of boards would change radically—from direct testing at present to careful and rigorous validation of school-based, teacher-conducted, assessment. If any direct testing by boards were still to be needed, it would be of a very different type—optional, open-book, and on-demand. Implementing this vision will require a lot of education of all stakeholders, and a lot of re-training. It will need time, and above all it will need strong political will—there are several entrenched interests for which such learner-oriented change would be fatal.

The short-term and medium-term reforms outlined below, therefore, should be seen as important not so much in themselves as for laying some of the groundwork for this more radical long-term change. We recognize that conventional exams can only be dropped when tested alternatives are in place, and we propose, at the end of this paper, some pilot projects for testing these alternatives. Meanwhile, it is imperative that conventional board exams do not extend themselves to other grades. Under no circumstances should board exams be

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[1] *K. Kumar's* Political Agenda of Education *(2005) argues persuasively for exams being an essential constituent of the British colonial ideology, with its need to disempower the (Indian) teacher while lending weight to the prescribed textbook and exam structures. Eric Stokes's classic* The English Utilitarians and India *(1959) shows how India and the Indian education system was used as a laboratory by Mill and others to test the efficacy of competitive exams as tests of merit* before *they were used in Britain.*

extended to other grades such as the 11th, 8th, and 5th —and news that some state boards have initiated such exams cause us grave apprehension. *Indeed, it is our view that the tenth grade board exam be made optional forthwith. Tenth-graders who intend to continue in the eleventh grade at the same school, and do not need the board certificate for any immediate purpose, should be free to take a school-conducted exam instead of the board exam.* [2]

2.1 The Learning Imperatives of the New Knowledge Societies

It is now almost a cliché to assert that the education needs of today and tomorrow are vastly different from those of the 19th and 20th centuries. But ideas usually become clichés when they are true. School education in the colonial era was designed to produce clerks for the bureaucracy.[3] What was taught, and what exams rewarded, was conformity and mastery of prescribed, narrowly defined content usually learnt from a single text. A questioning attitude was dangerous, and the teaching of skills other than those needed by the colonial state superfluous. After 1947, school education was extended to a wider population (though, arguably, not wide enough) and the content prescribed was partially modified to cater to the perceived needs of both nation building and the new industrial economy.[4] But knowledge remained scarce and was viewed as such. Hence, the primary goal of education remained that of disseminating it through prescribed textbooks and the prime purpose of examinations was to test the success of such transmission. The simultaneous processes of nation building and the creation of an industrial working class required homogenizing, and hence did not put a premium on differentiation or flexibility. And the welfare of the individual learner was subordinate to this political and economic enterprise.

Much before the dawn of the new 'knowledge society' in the 1990s, however, this educational model was already under stress. Contrary to expectations of early state-planners, it was the service industry rather than manufacturing that steadily grew to dominate the Indian economy and became the biggest source of new jobs. By definition the service economy involves catering to other people's varied needs in a flexible and differentiated manner—be it in hospitality, retailing, transport, insurance, or any other sector. And if standardization is the key to success in manufacturing, differentiation is the key to success in the service sector. If consistency is a key quality of an industrial worker, problem solving and lateral thinking are key qualities in a service provider (even at the humble level of a table-server). In the latter, one size manifestly does not fit all. And it calls for a very different philosophy of education.[5]

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[2] *This recommendation is elaborated in the section on relieving student stress and anxiety.*

[3] *This is, of course, the traditional view. It is challenged by Kumar (2005), who argues that the 'civilizing' motive was paramount. While no reader of Macaulay's famous* Minute *would doubt the genuineness of this* intent—*of creating a class of elite Indians who would be at least as British as the British in their world-view—Kumar takes the argument further. He argues forcefully that, even in terms of* outcome, *not clerks but creative thinkers (such as the first generation of nationalists) were produced.*

[4] *Ironically, given the nature of the new Indian democracy, there was a greater need for clerks to staff government offices in the decades immediately after independence than ever before in the colonial era.*

[5] *At the political level, likewise, the celebration of regional and linguistic diversity soon took prominence over a homogenizing nation-building model.*

The new 'knowledge economy'—in which India has emerged as a key player and in which, beginning with Rajiv Gandhi, its leaders have placed great transformative hopes—has put the old 'transmission of scarce knowledge' educational model under even greater stress. The Internet has demonstrated that information, even useful information, is not scarce—indeed it is freely available, often in overwhelming quantities, at the click of a mouse. What is needed is skilled processors of this information—people who can access it, sift and evaluate it (for there is a lot of chaff), sort it, and analyse it. Skilled workforce is needed to identify or deduce relationships within what seems like scattered and unrelated data. Finally, the findings need to be presented coherently and persuasively, and their application to real-life problems demonstrated. For those who can thus convert raw data into useful knowledge, jobs are there for the asking, here and overseas.

Two hoary myths persist on this issue and need to be addressed. The easier one is embodied in a question posed by a member of another National Focus Group: "What world are you living in? This bubble burst in 2000." With all due respect to this august personage, we believe that it did not—though we accept that, while its contribution to the India's economic growth and foreign exchange generation is now significant (and growing fast), its significant presence has yet to be felt across much of India, especially outside peninsular India and outside urban India.

It is slightly harder to show that the imperatives of the new knowledge society extend well beyond the world of software engineers and BPO professionals. It should be stressed that much of the process outlined above—the search and sifting of raw data and its   step-wise conversion into useful knowledge—is now at the heart of several traditional professions. Nor is it limited to elite professionals, such as managers, business consultants, doctors, researchers, economists, and journalists. Pharmaceutical and used-car salespersons, real-estate agents, travel agents, advocates, couriers, retailers, and, of course, personal secretaries—all require these skills to a substantial degree.[6] It is for this reason that we have used the term 'knowledge societies' in the plural rather than the singular. These 'societies' or professions may have nothing in common other than the commonality of this process of 'information-sifting and evaluation'. Whether one calls this analytical thinking, critical thinking, lateral thinking, or problem-solving does not matter. (Indeed the skills needed are a composite of these.) The point is that most of these types of thinking are required in most occupations today. *Yet we are hard-pressed to find a single one of these activities being required of exam candidates in Indian schools today*, let alone such a composite.

The negative impact of this is already being felt—in a scarcity of skilled personnel. How well are we doing in producing these problem solvers or lateral thinkers by these new and traditional industries? Let us turn to the quintessential problem-solving profession, one that Indians have done well in—software programming. NASSCOM predicts that there will be shortfall of several lakh computer programmers by 2010, and that this is the single-largest hurdle the industry faces. Further inquiry reveals the reason. In a recent interview, S.A. Deshpande, head of training and recruitment at one

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[6] *Internet initiatives like ITC's* e-chaupal *and those of M&M may soon make it worthwhile even for the farmer to acquire its rudiments.*

of India's very large software companies, has this to say: "19 out of 20 graduate applicants and 6 out of 7 post-graduate applicants are unemployable. They simply lack the requisite problem-solving skills or often even any real clue as to what problem-solving means." She continues: "We don't really need engineers as programmers. We could even hire high-school dropouts if they had the right skills. We tend to hire engineers because they, unlike most other graduates, have usually learnt problem-solving along the way." If a country of over 100 crore is struggling to produce one lakh youth a year with these problem-solving skills, all is clearly not well with its education system. Nor is there much point in merely blaming college education. There is a good amount of psychological theory to suggest that if you want inquiring minds who can 'think out of the box' at the age of 21, you cannot begin to create them at age 17. You have to begin at 7, or at least at 11.

We have stressed the economic importance of creating problem-solvers and rigorous thinkers because education, more than anything else, has the potential to cause upward mobility. And, in turn, well-educated manpower (and womanpower) has always been a pre-requisite for rapid productivity gains. But even if there were no economic benefits most polities and civic societies, at least within democracies, would welcome the creation of a citizenry with a keen, questioning mind, able to judiciously process information for itself. Within the specific Indian context, it is hard to imagine the State making much headway against problems of poverty, patriarchy, and caste discrimination without large sections of its citizenry possessing such analytical and critical skills. Likewise, a lot of the solutions for India's complex social problems will need to come from creative visionaries working singly and collectively. Are our education and exam systems working to create such 'problem-solving' citizens?

2.2 Beyond Producing Clerks: Exams and Social Justice

Education remains the primary engine of upward economic mobility. Due to the pioneering entrepreneurial efforts of a few in Bangalore and Hyderabad, India is today uniquely poised to become an intellectual powerhouse in the new 'knowledge' era. Pharmaceutical and biotech research, consulting, and of course software development, all promise hundreds of thousands of high-paying and fulfilling jobs—if, however, the Indian education system can produce students with the required skill-sets and attitudes. In particular, it would have to tap students in small towns and rural areas—not merely because a larger number of 'knowledge workers' will be needed than big cities could produce but *because social justice demands that the rural and small-town population be given (howsoever belatedly) the opportunity to benefit from the newer engines of economic growth.*

This is an immense challenge that the Indian education system faces, and we must tackle it with fresh thinking. We must discard the mandarin mentality—one that masquerades as progressive but is actually colonial in its quest. This mentality is epitomized by the remarkably candid question posed by the Education Secretary of a western state of India, after the Chair of this Focus Group had made his presentation. 'Who, then, will produce the clerks?' the Secretary asked. Lord Macaulay would have smiled from his grave.

A more serious objection (raised by a school principal in a rural part of Pune district) deserves more careful consideration: "Today's board exams

cater to all sections of the population—including those who are poorly taught, in schools without adequate facilities. How will he cope when asked to solve a problem on the transfer of momentum rather than just defining it? Won't more students fail? Won't more drop out?" The question is crucial. It assumes that excellence and equity are at odds; that the former must occur at the expense of the other. Before we attempt an integrated solution in the subsequent sections, a few observations are in order in an attempt to think beyond the 'equity vs excellence' polarity.

We believe that to teach skills and create excellence, in hitherto neglected backwaters, is the way—perhaps the only sustainable way—toward real equity. Disadvantaged regions and groups are not being done a favour when pass certificates are handed out that get them nowhere—neither to a job nor to success at university[7]. Educators should feel good not when students from disadvantaged groups and classes and regions get 'pass' certificates, but when these certificates open doors to well-paying, high-skilled, satisfying jobs that permanently raise them out of poverty. (Today this is not the case, and, frankly, can one really blame employers?) We owe it to these disadvantaged regions and groups to teach them the skills needed to succeed in today's world. The real losers in a system that does not teach practically useful skills are these disadvantaged groups—the privileged will usually absorb these from their environment anyway. In the name of equity, let us not perpetuate inequity.

A system of education and examination that teaches members of disadvantaged groups the requisite problem-solving and analytical skills needed by the job market is vital. Memorizing and regurgitating textbooks is not a skill needed by the job market. An exam system that encourages this type of 'learning' snuffs out creativity. As the National Advisory Committee on 'Learning Without Burden' opined:

> *Board examinations, taken at the end of Class X and Class XII, have remained rigid, bureaucratic, and essentially uneducative… and mainly a source of awe because of the amount of information they demand in a manner ready for instant recall.[8]*

We will suggest below that such exams not only snuff out the joy of learning but, by doing so, encourage 'dropping out' and are, therefore, economically regressive.

Exams and learning systems that require rote are unlikely to stimulate students, create interest in them to attend, or make them feel that they are learning skills useful to their later life. True learning takes place only in an environment where people feel challenged. As Socrates noted, "Education is not the filling of a vessel but the kindling of a flame." The trick is to kindle the flame, and the student will remain motivated. On the other hand, an exam system forcing students to memorize a plethora of facts, from an unattractive, dry-as-dust textbook—facts usually divorced from any conceptual framework and certainly from their frame of reference and experience—is unlikely to keep them

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[7] *And even this "passing" is not occurring. No less than about 60% of tenth-grade candidates and about 40% of twelfth-grade candidates do not clear their respective exams.*

[8] *Government of India (1993).* Learning without Burden. *Report of the National Advisory Committee appointed by the Ministry of Human Resource Development, Department of Education, New Delhi. p .17.*

attending. Has the system made an attempt to reflect and authenticate their frame of reference or to work through their distinctive worldview? Or has it merely tried to stuff some half-digested information from an alien context down their throat? The vast majority of textbooks prescribed by educational boards do precisely this. Yet we tend to attribute dropping out to 'learner disinterest', subtly shifting blame onto the learner. Could it be that the blame for this disinterest lies more with the system than with the learner? That it lies with a system that failed even to attempt to kindle a flame? Could it be that a more challenging regimen but one rooted in the students' realm of experience would have been more stimulating, kept them coming, and hence led to their learning lifelong skills? (Multiply this by a couple of hundred million and we have laid the foundation for rapid upward economic mobility and higher quality of public life and creative endeavour.) If we accept this possibility, excellence and innovation in school education do not stand in the way of equity—indeed it would be impossible to imagine equity without a renewed quest for educational excellence and relevance.

Of course the teaching of skills, and teaching the teachers who will teach these skills will not be easy. It will require resources, careful planning, a careful roadmap, and hard work. It will also mean trying to truly connect with students whose lived experience is diverse and different. Hence, it will require decentralization—of curricula, textbooks, and exams. The task is daunting but there is no other path. It must be done if the country as a whole, rather than islands of excellence here or there, is to move forward.[9]

2.3 What do Board Exams Test?

Though fairly reliable tests of narrow textbook content, Indian school board exams are rarely valid tests of desired competencies and broader curricular objectives, even within the cognitive domain.

The core of the exam system is the exam paper. This may seem almost a tautological assertion but, given the lack of attention paid by most boards to the quality of the actual exam paper, it is necessary to make it. While actual exam administration and security and release of results have improved in recent years across most boards—mass cheating is down due to more flying squads, most boards release results within 45 days of the end of the exams, etc.— the question papers themselves remain seriously problematic in the following ways:

1) Repetition of identical (or very similar) questions from year to year (hence playing into the hands of coaching classes)

2) Ambiguous phrasing of questions or questions phrased as 'Write a note on…' (both of which require students to pour out all they remember from the textbook on that topic)

3) Inordinately lengthy (perhaps in an attempt, usually vain, to 'cover' all chapters of the textbook), hence allowing little time for actual thought, and discriminating against thoughtful reflection

4) Designed to test a detailed knowledge of

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[9] *Some other reforms such as the award of a percentile rank with respect to peer groups, e.g., all students in the school and all students in a block, would, by highlighting student achievement in its proper context, also aid the cause of social justice. These are dealt with in subsequent sections.*

the textbook (including trivia and/or errors within it) rather than competencies and core concepts

Question paper sets from the most recent (March 2004) 10th and 12th grade exams were collected for detailed study. Attention was focused on paper sets from five boards popularly perceived to be the best in the country. The exercise was an eye-opener. Listed below are samples of the deficient questions, grouped according to type of deficiency: *missing the forest for the trees*, i.e., (a) zooming in on non-essential information or transient information, or (b) information that is incorrect or purely a creation of the textbook writer.

There should be a shift away from 'short answers' usually requiring little more than familiarity with often-obscure and peripheral statements in the textbooks, e.g., What is the weight of the pituitary gland? As the concerned Bangalore father who cited this example rightly explained, the gland should be studied for its crucial function, perhaps even for its structure, but hardly its weight! It is perfectly acceptable for the textbook to mention how small this crucial gland is (though even this could be done better by comparison to a pea than by saying 0.78 gm). But it is not proper for the examiner to call upon this fact (if indeed it is one, we suspect the weight of the pituitary glands among members of our group would vary within a fair range).

Examples from 2004 papers in the same category include the following.

Who were the parents of Benito Mussolini? (0531)—irrelevant—and *How many members are there in the U.N.O.?* (GSY 59/3)—transient.

Who was called Modern Messiah? (0562) was a question asked in a 10th grade History and Civics paper. The term 'Modern Messiah' was employed by the textbook writer (perhaps to describe Karl Marx—though it could have been Gandhi) but has no wide currency outside the textbook.

A tenth grade geography question—*Describe the method of irrigation prevalent in India* (0563)—takes as a given fact that there is only one such method in India, perhaps because the textbook has mentioned only one!

There are also times when the fact culled from the textbook is simply wrong. The question *Our highest import is from (Hong Kong, Italy, Kuwait)* (0533) has no correct answer provided—at least for any year in the last quarter century.

Common causes of this general malady are:

(1) the examiner's desire to test familiarity with the nooks and cranies of the textbook rather than to test for competencies and core concepts and

(2) the paper-setter's genuine confusion on what is central and what is peripheral, and what the role of the exam should be—to evaluate competencies and understanding of core content and concepts, not familiarity with obscure (and often incorrect) factual trivia.

False objectification, i.e., the chopping up of unified, integrated knowledge into discrete chunks, is another frequent problem, especially in the social sciences. The following question is a good one: *How was the feeling of cooperation, friendship and punishment seen in Queen Victoria's Proclamation of 1858? (GSY 61/2).* But rather than asking for a meaningful essay the question asks for '*five* examples' of such feelings, which rather undermines the enterprise.

A more extreme case of how a meaningful question loses all meaning when it is chopped up

for the sake of ease in marking is the following question from a 2004 Business Studies paper (GSY 66/3): *Explain, in brief, any six steps involved in the process of selection of employees* (6 marks). Surely, the sequence is more interesting and important than the number of steps. Why should a student not be invited to write a coherent essay on the process of employee selection and its key issues? Should marking convenience (6 points: 6 marks) take precedence over coherence?

Marking convenience (and excessive reverence for the content of a textbook) often leads to another shortcoming. An obsession with objectivity leads to a lack of open-ended questions even when the content demands it. Students are forced to justify a textbook assertion that is easily (and fruitfully) contestable.

Explain how the Revolt of 1857 was the First War for National Independence (GSY 61/1). It leaves no room for a student to hold the view held by most mainstream historians today—that Indian nationalism was scarcely a cause of the events of 1857, and that there is little continuity between these events and the post-1890s anti-colonial struggle.

What is the relevance of Gandhism today? (GSY 59/1)—this question forces the student to argue that Gandhism *is* relevant.

Often a good question is marred by a disproportion between the few marks allotted and the vast breadth of the question. Examples of this from 2004 exams are as follows.

Is Marxism relevant today? 2 marks (hence just over 3 minutes!) (GSY 59/3 Pol. Sc.)

Give a general picture of the political trends of the world after the Second World War. (725S)

Describe the ideals and principles embodied in the Constitution of India. (4 marks—725S)

Write a short note on the scope of Ethics. (5 marks—730S)

Passages chosen to test English comprehension routinely cater to students from a particular class: affluent, urban, and conversant with Western practices. Note the extract provided below.

DSL English Communicative 1/2: "If your credit card is more of a functional accessory while you shop or entertain in your own town, you will want a higher credit limit. Here, foreign and private banks will give you a higher credit limit."

Would this make much sense to a student outside this class? Another passage, this time on whale hunting in the Arctic seas, describes how "the blubber is stripped off and boiled down… and can be made into food for human consumption." This may be appropriate to a question on human geography, but cannot passages that are more relevant be found to test English competencies? The passage continues: "Both cod liver oil and halibut liver oil are given to sick children… These oils may be bought at any medical shop." (0522) Not only does this continue to make sensitive stomachs churn (perhaps sicken)—it is also untrue. Only a big urban chemist in India will stock cod liver oil, and halibut liver oil is virtually unknown.

Even a very basic question like The headquarters of the Theosophical Society in Madras is at (Adyar, Annanagar, T. Nagar) [0562—History & Civics, 10th Grade] has a definite urban bias.

Finally, one turns to questions in the 2004 papers that are ambiguous—often to the point of incomprehensibility.

Write a critical note on the emerging party system in India. (GSY 59/2) [The party system in India is hardly emerging—it has been there since 1947. Is the question asking about new trends within it?]

When do you get good from a book? (0551—English Paper 1, 10th grade) [Such sloppy expression would be inexcusable even in a paper other than an English paper.]

Give the meaning of globalisation and the steps taken in this direction? (DSL 32/1) [By whom? When?]

Who acts as the reserve force in the Council of Ministers? (0531) [Neither is the term 'reserve force' used in the Constitution nor is it referred to by anyone we know of. Nor is it immediately clear what the phrase means.]

Indivisibility of the world is questioned by the very existence of 'Third World' countries—Examine. (725S) [Why such questions are not vetted and weeded out is the real question.]

Analysis

The cause of the above question setting/ paper setting malady is not difficult to diagnose. In recent years, exam boards have shifted their attention to preventing paper leakage. Substantive vetting of papers is rare as it poses a security risk. As it stands today, the system is primarily designed to be 'accountable' in case there is a leak, not to ensure quality. The prevention of cheating has also necessitated the creation of multiple sets of question-papers, placing a further burden on the process. In some states, like Punjab, five students sitting behind each other will all each solve a different question paper. In other states, many sets are generated but only one finally used, and the other sets held in reserve. But in either case, the plight of paper-setters is unenviable. In several states question papers are set by one individual, or a very small group of individuals, behind locked doors. These one or more individuals create multiple sets (usually three to five) on a single day (usually about four months before the exam) and get paid about Rs 250 per paper for the pains they take. Other than the textbook there is usually no support material provided, nor permitted to be brought in (ostensibly for security reasons). Nor is there scope for later modification. Given the conditions under which they are produced, it is no surprise that the questions are trite and require mechanical regurgitation, or problems are directly taken from textbooks.

Paper-setting needs drastic reform. In fact, as has been successfully tried in Maharashtra (though for reasons of security rather than quality), the focus should shift to *question setting* from *paper setting*. Written by different paper setters at different times, questions should be categorized according to level of difficulty, topic area, competency being evaluated, and usage and testing record. A small expert group can then assemble individual questions into a paper. It should not be necessary that individual questions are written by experts. Indeed, democratisation of this process is desirable. Good questions should be canvassed from teachers, college professors in that discipline, educators from other states, ex-students, and even students. After a question has been selected and used in a paper, the question writer should be suitably compensated—this should provide incentives to write better and more innovative questions.

A type of question that has great untapped potential is the multiple-choice question (MCQ). Well-designed multiple-choice questions with plausible distracters have the following advantages over 'short answers':

1. They can be machine-marked and, hence, are entirely 'reliable'.
2. Very quick results are possible.

3. Copying problem can largely be eliminated by shuffling of question numbers.

4. Extensive syllabus coverage is possible due to the brief time needed per question.

5. Lower student anxiety levels, higher pass percentages, and lower urban–rural score disparities are reported by DSERT in Karnataka, where MCQs have been tried extensively in recent years for 60% of many subject exams.

It should be stressed that designing a good MCQ paper is an art and cannot be left to untrained examiners. They will require training by specialist trainers. Also, MCQ is not a panacea for the exam system. While MCQ can more deeply probe the level of conceptual understanding of students and gauge a student's mastery of subtleties, it cannot be the only kind of question in any exam. MCQs work best in conjunction with some open-ended essay questions in the second part of the paper, which tests expression, and the ability to formulate an argument using relevant facts.

If, as we recommend, exams in most subjects adopt a combination of MCQs and open-ended essay questions (which could be 'tiered' to help students structure their response), the ubiquitous 'short answer' or 'objective-type' question (the staple of exams today) can be eliminated altogether.

2.4 One Size Does Not Fit All: The Need for Flexibility

Exam systems need to be more flexible. Just as we must ensure that education and assessment systems are fair to all social groups, we should ensure that they do not discriminate against particular kinds of learners. There is a lot of psychological data to suggest that different learners learn differently, and,

hence, to test all learners through a written test of the same type in subject after subject is unfair to those whose verbal proficiency is superior to their writing skills, those who work more slowly but with deeper insight, or those who work better in groups than individually.

2.4.1 We propose the following solutions

1. *There should be more varied modes of assessment, including oral testing and group-work evaluation.* This is extensively discussed in the section on CCE and Teacher Empowerment. Suffice it to say, here, that as sensitive teachers usually pick these unique strengths and weaknesses of students, one should utilize their insight in assessment and empower them and the system of internal assessment. At the same time, to prevent its abuse by schools (as is currently the case in practical exams), internal assessment must be graded on a relative, not an absolute, scale and must be moderated against the marks obtained in the external exam. External moderation of internal assessment through mandatory random sampling is strangely absent at present. The consequences are predictable: abuse of the system by schools is rampant, the end-users have little faith in it, and boards, aware of this, usually report internally assessed marks separately, thus allowing them to be ignored.

2. *Do not expect everything of everybody in every subject.* One can appreciate the rationale for not having different curricula for different types of schools and types of students. (As has been argued—most forcefully in Maharashtra—this would

perhaps create a hierarchy within the same exam board and create two classes of learners.) But, just as we allow students and schools some element of choice in the choosing of their subjects, they should have the choice of picking one of two levels within that subject. Of, say, six subjects, every student would choose to do 3 (or 4) exams at the higher level and 3 (or 2) exams at the standard level. Though set on the same curriculum, higher-level exams would have a larger component of high-order-skill testing and demand greater speed, conceptual understanding, and depth of insight than the standard-level exams.

Not only would the above reform cater for different kinds of learners and allow different levels of testing, it would also reduce overall student stress levels. It is well known that students experience greatest stress before and during their most 'difficult' subject exam.

Secondly, this reform, when applied to Mathematics and English, two subjects with the lowest pass rates in most boards, will also improve the overall pass rate. As envisioned by us, standard-level Mathematics for the tenth grade would be designed for students who will not pursue maths and the sciences further. It would focus on computation, algebra, areas, financial maths, and interpretive statistics— quantitative methods that will equip them for life. Trigonometry, set theory, logarithms, geometrical proofs, volumes, and more technical topics within mathematics will either feature only in

higher-level mathematics (if there are two syllabuses), or comprise less than 20% of the standard level paper (if there must be a common syllabus).

Likewise, English could be examined at three levels: the most basic level would seek the ability to comprehend and communicate in English and would have a substantial oral-tested component. The intermediate level would be a test of standardized English, seeking correctness of grammar, spelling, syntax, etc. in addition to comprehension and communication. The highest level would, in addition, test skills of literary analysis. A similar three-level format could, indeed, be adapted for all languages. Every student should be expected to test for one language at the highest level and another (or two, in some states) at any level.

3. *Flexibility in when exams are taken*: If it is accepted that learners learn at different paces, there is no reason, other than administrative convenience, to test them after two years of higher secondary course in all subjects simultaneously. We recommend that students be allowed to clear some (up to two, perhaps) subjects at the end of the XIth (or the IXth grade for the secondary exam). This would not only reduce stress a year later but also make for better long-term learning—and cause very little inconvenience to exam boards. Allowing students to take another two exams in the middle of the XIIth (or the Xth for secondary exam) would require boards to depart from their once-a-year

schedules (barring re-takes) but would lead to a more learner-friendly system.

In general, every student should be given a three-year window within which all the subjects must be passed (or scores improved). In any one exam session students should have a choice of taking no exam, all exams, or a few exams. This reform besides allowing for learning and testing to take place when a student is ready for it (rather than when the board decrees it on a one-size-fits-all principle), also works towards social justice. A large number of exam candidates are trying to hold down a full-time or part-time job while doing their exams. A large number of these students do not get through because they do not get more than a week off before the exams—hardly sufficient time for preparation for all subjects. Allowing them, for instance, to do two subjects in each of the three sessions would greatly enhance their performance.

In the long run, the system must gradually move toward on-demand exams (they are usually done online, internationally) taken when the candidate is ready, rather than at the convenience of the system. We suggest a small beginning of this in computer science exams as a pilot project and its future extension to maths and physics exams.

4. *Enhanced reporting of performance* (or Comparing apples with apples): Along with the absolute mark (or grade) in each subject, it is now very easy, given computer-based registration, to provide information of relative performance on the mark sheet. We recommend that percentile rank be given with respect to (a) the entire universe of candidates in that subject, (b) all candidates in that school, and (c) all candidates in that block. A student from a disadvantaged area with low-quality educational infrastructure who scores, say, 70% (absolute marks) would attain a percentile rank on 95% within her block—a commendation that deserves mention. A South Mumbai student at an elite school who also attains 70% may, likewise, attain a percentile rank of only 50% within the school and 60% within the block.

While there is no way to ensure that colleges, junior colleges, and professional courses at universities will pay attention to these parameters of relative merit (and it would be hard to argue that merit, in education, is not a relative concept), in their admission process it is important to make this percentile-rank data accessible to these end-users.

2.5 Reduction of Exam Stress and Anxiety

It should be remembered that examinations are artificial situations created for the convenience of the system and not the individual learner. They are relied on because more holistic assessment is usually unviable due to cost and manpower constraints. Given their artificiality and time-bound and 'one-shot' nature, it is not surprising that exams in their current form will induce anxiety. Even so, the recent increases in news reports of students getting seriously affected by pre-board or board examination anxiety and committing injury to

themselves or others is disturbing. We see this stress as a symptom of the malaise afflicting exams rather than the disease itself.

As suggested above, adoption of more comprehensive and credible system of internal assessment would reduce some of the stress felt during external exams. The choice the student would have of taking two or three of his more anxiety-inducing subjects at the easier standard level, and at a time of his convenience, would also help.

In addition, we recommend the following measures for reducing exam anxiety and its often-morbid consequences:

1) A lot of stress is related to the excessive length of the question papers. Shorter exams that leave time for deliberation and periodic rest would help. The exam length (usually 3 hours per subject) should be reduced (to 2.5 hrs for higher level exams and 2 hours for standard level exams), remembering that the paper setter's quest to cover all sections of the syllabus is an illusory one in any case. As importantly, the numbers of answers expected and the quantity of response in the given time should be reduced. Exams should be set so that 95% of all students should be able to complete it and have time left for a quick review. Pilot projects should be initiated in which exams are not time-bound.

2) Questions that require students to draw on two or more areas of the syllabus would also allow more comprehensive testing within lesser time, in addition to constituting good educational practice by calling on candidates to make relevant connections between material from different chapters. (This is a much-needed skill but rarely tested in Indian board exams. If we accept Prof. Yash Pal's contention that education is all about making lateral linkages, all about creating 'an ecology of knowledge in the brain', such questions are surely necessary.)

3) A shift in emphasis from 'short answers' (often requiring familiarity with two obscure lines at the bottom of, say, page 124) to MCQs designed to test real understanding of core concepts would help reduce student anxiety, in addition to allowing greater differentiation at the top end. (Already discussed in earlier section.)

4) Unless the school lacks a very basic infrastructure, students should be able to take the exam in their home school in order to reduce stress caused by additional travel and unfamiliar environments. (Discussed in a later section.)

5) A shift in emphasis to testing competencies and away from memory would certainly reduce stress, in addition to aiding the validity of exams. A long-term move toward open-book exams can be envisaged and is one of the pilot programs mentioned at the end of this report. Meanwhile, candidates doing Chemistry paper should be given the periodic table and bond angle values; examinees in Math and Physics should be given some trigonometric identities and other formulae which otherwise have to be learnt by rote. The focus of questions should, likewise, move to genuine applications from mere 'plug-in'-type problems. In history, questions which test

whether students know where each of the Indian National Congresses met (pure rote) be replaced with questions on the *significance* of key Congress sessions. Questions such as *Mention eight causes of the events of 1857 (4 marks)* set panic bells ringing (with the student worried that she cannot remember more than five, and then bungling even these in her anxiety) and should be replaced with questions eliciting open-ended data response and analysis. For instance, in this case, three key paragraphs from the 1857 Azamgarh Proclamation could be provided and students asked an open-ended question: 'Based on this extract *and* your own knowledge, discuss whether the events of 1857 can best be described as the Great Revolt, the First War of Indian independence, or the Sepoy Mutiny.' This would not only be more humane and less stress-inducing, it would also call upon students to organize their thoughts into an argument and demonstrate higher-order interpretive skills.

6) *Elimination of 'the term fail':* We recommend that the word 'fail' not appear on mark sheets, and be replaced by phrases such as 'unsatisfactory', or, better, 'needs more work to attain desired standards'. The word 'fail' carries a social stigma and often victimizes a student for systemic deficiencies in teaching, textbook availability, etc.

7) *Elimination of the pass/fail concept by permitting repeated retakes*: There is no evading the fact that the purpose of board exams is to certify the satisfactory completion of a course of study. There will

always be some individuals who cannot demonstrate such satisfactory completion. They should be provided a number of chances to re-take one or more exams (within a three- or even a five-year period). Till then, they are 'working toward the certificate'. Even after the expiry of this window, they should be free to attempt the whole exam (in all subjects) again. Hence, while it is possible to not succeed in passing an exam, no one ever definitively (and permanently) 'fails'. We believe that the above distinction is meaningful, and considerably different from the current understanding of boards on the pass/fail issue.

8) The Focus Group is not convinced that boards today work (singly or collectively) toward ensuring that the pass mark represents a meaningful and carefully calibrated cut-off designed to certify satisfactory completion of a course. In some subjects in some boards, attaining the cut-off mark (30%, 33%, or whatever) is relatively trivial and does not guarantee attainment of even a minimum competency. In other subjects in other boards (or even the same board), the minimal competency desired is attained even by students attaining 25% marks. Papers in all subjects and all boards should be designed so that the pass mark is not just an arbitrary cut-off but actually measures the attainment of desired competencies.

9) Following the principle that exams are an evil, if a necessary one, there should be no exams than are strictly and absolutely

necessary. *The tenth grade board exam should be made optional forthwith.* Tenth-graders who intend continuing in the eleventh grade at the same school, and do not need the board certificate for any immediate purpose, should be free to (and encouraged to) take a school-conducted exam instead of the board exam.

Recent proposals of various boards to introduce board exams at various other levels of primary and secondary education, however well-intentioned, will further exacerbate the vicious cycle of over-testing and undue anxiety, and further undermine the joy of learning and discovering. We recommend that such plans be dropped forthwith. If some schools are unable to conduct fair and meaningful year-end examinations, it is because there has been little investment by boards in teacher training with a viewpoint to improving school-based assessment, and because the tight textbook–exam nexus has increasingly rendered the teacher a mere addendum to the learning process. One must work toward re-empowering the teacher and dis-empowering boards—not toward further extending the domain of boards into the education process.

2.6 Exam Management

In the non-academic side of exam management, there has been a significant improvement in recent years. Aided by computer technology, the whole process from registration to generation of exam tickets and generation of mark sheets has become seamless and largely error-free in many states. Most states also now release results within 45 days from the last exam, a significant improvement over the pre-computerization norm of 60–70 days. Technology has also aided the prevention of malpractices such as impersonation (scanned photographs on both ticket and mark sheet), copying (electronic eyes), and influencing examiners (encrypted barcodes).

What we list below are some 'best practices' that we recommend for adoption by all states. By its very nature, this can only be a selective list. We urge COBSE to draw up a more detailed document outlining more such 'best practices'. It would be invaluable to smaller boards and even boards with good track records could gain a lot by studying the practices of other state boards in selected areas.

2.6.1 Pre-exam

1. *Choice of exam centres:* The travel convenience of students should be paramount here. During exams, students should not be expected to travel much more than their daily trip to their school. When a school is large enough and has the requisite infrastructure to be a centre, students should be able to appear for their exams there itself in a familiar environment. This will have the benefit of reducing stress on candidates. To prevent school-aided malpractices, the invigilation team should however be largely or entirely from another school in the locality.

   In some states, like Kerala, students have a right to take their exam in their own school—hence each school is also a centre. While this should be the ultimate goal, we recognize that malpractice situations in different states are different, and several

schools in many states lack the requisite infrastructure. We suggest that all schools, public and private, which possess the following facilities be authorized as centres for their own students:
- Compound wall
- Telephone
- Power
- Police station in the area (may be relaxed for rural schools)
- Photocopying facility within one km (may be relaxed for rural schools)

Schools would lose the privilege of being centres if found engaging in malpractice or found incompetent in preventing it.

2. *Exams should never be postponed*, as it causes considerable hardship and unnecessary anxiety to candidates and undermines their faith in the system. In cases of flash teacher strikes, police and Zilla Parishad staff should be mobilized and trained as stand-in invigilators. More commonly, board exams have had to be postponed because of an unforeseen holiday observed by a community within the state. All boards should announce the schedule of exams at the beginning of the academic year through public advertisement, and all communities invited to voice their reservations to the draft schedule, if any, by the end of October. The dates would then be frozen. To prevent postponements due to paper leakage, one emergency 'replacement' set of papers should be always be at hand.

3. By *protecting the identity* of candidates and examiners from each other, a lot of post-exam malpractice can be checked. Maharashtra has successfully implemented a system of encrypted barcodes which hides the identity of the student (and the school she hails from) from not only examiners but also exam board employees. When this is used in conjunction with another method that many states already adopt, randomising of exam scripts given to any particular examiner, malpractice at the level of the examiner becomes far more difficult.

4. *Paper setting*: This is a crucial area which requires far more attention than it does at present, and is dealt with in a separate section of this report. It only needs to be stressed here that the question/paper setters must produce the initial mark scheme for that paper in addition to the paper. Strange as this may sound, the two processes remain divorced at some boards. Subsequently, of course, the mark scheme should be edited by experts, very soon after exams and then again re-edited in light of typical student responses—which may reveal ambiguities or errors in the question paper.

2.6.2 Conduct of Examinations

1. While flying squads are a good idea and, along with public awareness, have led to a decline in cheating and copying in many states—most visibly in Haryana in the last two years—they should minimize their intrusiveness in the exam process. Candidates should not be disturbed in the course of their exam and if disturbance must be caused (e.g., for mass checking of entry tickets to detect impersonation), compensatory time should be given to candidates.

2. In general, electronic surveillance by hidden electronic eyes and the use of technology such as magnetic strips on doors is less intrusive and preferable to flying squads eager to make their presence felt. Costs of renting these technological aids have fallen sharply in recent years.

3. A major source of cheating remains help from outside, sometimes even through ingenious means such as mirrors and drums. If candidates are not permitted to leave the exam centre in the first hour, and even thereafter not permitted to carry out question papers with them, most of this can be nipped in the bud as errant helpers on the outside simply would not know what answers to provide.

4. Seals on the question paper packet should be opened and signed, just prior to the exam-start, by three individuals: chief invigilator, police/security chief of the centre, and a student candidate. Likewise, answer paper packets should be sealed and similarly countersigned before their departure from the exam hall.

5. Toilets are often used by candidates as repositories of crib sheets and must be monitored throughout the exam as closely as the exam hall itself.

6. Responses to the paper just concluded should be invited from teachers for a period of 24 hours. Pre-designed forms (both physical and online) should be distributed for this purpose and teachers should return them within 48 hours of the end of an exam. They are often the best judges of the length of the paper, adequate syllabus coverage, errors, and ambiguities in questions. These views should be taken into account while creating the mark scheme.

7. One area of immediate concern is the widely varying concessions and facilities available to students with physical or learning disabilities. Some boards have not taken up this issue in earnest and need to be acquainted with more progressive measures taken by other boards. A separate Focus Group report deals with this aspect.

2.7 Transparency and Honesty in Mark/ Grade Reporting

1. As a lot is at stake in exams, it is only natural that many candidates would want to be doubly sure that they have not been victims of systemic error. Exam boards should not only be transparent but also be seen to be transparent with respect to answer paper, re-grading, re-checking etc. Such requests also represent an opportunity for internal audit of systems and examiner quality. Even so, sadly, some boards view such requests as a hindrance to their functioning. At the recent Trivandrum COBSE conference, the ex-chair of an important board even opposed a recent Supreme Court decision that gave candidates the right to having question papers re-checked. "How do we know that the second examiner is not in error?" he asked. The inability of boards to find reliable senior examiners for such re-checks should not be an excuse to deny students a right to transparency.

2. Requests for re-checking have declined dramatically in states like Kerala, Gujarat, J&K, and Karnataka, which have given students access to their answer papers (at a

charge, of course) in either scanned or photocopied form. We laud the efforts of these and other states to make their systems transparent. One can also be fairly sure that the more casual examiners in these states now do their job more diligently. Greater transparency generally leads to greater accountability and efficiency. We strongly recommend that all other states fix their systems to provide such access to students, on request, at reasonable (but not subsidized) cost.

3. Detailed mark schemes should also be made public, and posted on official websites for scrutiny, as soon as reasonably possible in the interest of transparency. Where several question papers have been used simultaneously (to prevent malpractice), they need to be standardised for the level of difficulty, and scaling done if one is appreciably more difficult than another. This does not happen at several boards. One response from the board chair of a northern state is worth quoting: "The same paper setter produced all five sets on the same day, so we assumed they were of comparable difficulty."

4. Enough time (at least two weeks) should be provided between the delivery of scanned/ photocopied answer papers and the end of the period for appealing a grade. All re-marking should be done by experienced examiners. We suggest the following: if the first re-mark results in a total mark change of less than 5%, the initial mark awarded stands; if the change is between 5 and 10%, the new mark stands; and if the discrepancy is greater than 10%, it is sent up to a high-

level examiner (preferably one involved in the preparation of the mark scheme) for final arbitration.

If the final mark changes by more than 5%, there has clearly been a slip-up on the part of the board and, as a gesture of goodwill, the re-checking charges should be refunded to the candidate. (The argument that they should be happy that their marks have gone up, and should not care about the minor cost, is not germane to the issue.)

5. To prevent frivolous grade-appeals, boards should reserve the right to raise *as well as lower* marks/grades if the deviation upon re-marking is found to be greater than 5%.

6. All of the above are not alternatives to the creation and maintenance of sound systems of examiner moderation, but just additional safeguards. At least 10%, and preferably 20%, of each examiner's output should be sent up for moderation, and, likewise 10%–20% of each moderator's output sent up to a senior moderator. Examiners whose marks are found to correlate poorly with that of the moderator's ($r<0.8$), or where the absolute deviation exceeds 10%, should be fined, as is the practice in Karnataka, and barred from future examining. The entire output of 'failed' examiners, more importantly, should be re-marked. Statistical methods to test and adjust for inter-examiner variation exist and should be employed.

7. The above point (6) presupposes that examiners are volunteers eager to do a good job. This can only happen if they are paid a fair wage for their important work. The practice of forcing teachers to examine is

highly unlikely to lead to good examining and should be abandoned forthwith. Furthermore, it should be recognized that all good teachers do not make consistent examiners and vice versa. If boards pay examiners better—and we recommend a rise in daily wage from the low Rs 100 or 125 per day by a factor of two or three here, not 10% or 20%—and weed out poorly motivated examiners, many of the core problems will get solved. (Given that most state boards in India are in good financial health— one small state even boasts of an accumulated corpus of Rs 84 crore—funds should not be a problem.) This higher payment should, however, be linked to the level of correlation between the examiner's mark and the senior moderator's. Promotion to rank of moderator or senior moderator should also not be merely a function of seniority but merit—as measured by his/her level of correlation. Special awards for especially conscientious examiners should also be instituted, just as for excellent teachers.

8. If, as we recommend, state boards introduce more open-ended and free-response questions and eschew false objectification, there would have to be specialist examiners trained to evaluate such questions. In such cases, question-by-question marking is preferable to one examiner marking the entire answer paper. Some states already do this.

9. It is recommended that examiners generally grade papers at regional centres set up for the purpose and not at home. A limit of twenty-five scripts a day per examiner should be imposed to prevent error due to fatigue.

10. *Honesty in mark sheets:* While the recent debate around the 'marks or grades' issue has been regrettable, as it has focused everyone's (and the media's) attention on just one aspect of exam reform, grades do have one clear advantage over marks. They are more honest. Given the quality of the average examiner (often coerced into marking and always poorly paid), the ambiguity of the questions, and the lack of moderation systems in most boards, the standard error of the mark awarded is high. It is therefore much more honest to declare a grade (say 70–80% =B) than to award a mark (say, 74). Grades also have some other minor advantages over marks. For instance, automatic re-grading of exam scripts can be confined to those students currently at the top end of the lower grade, that is, students for whom an error is most likely to have a negative impact. They may also play some role in reducing stress and in eliminating the 'top rankers' game so dear to the media and coaching classes. At the same time, we should recognize that grades are not the panacea that some of its champions have made them out to be, and a transition from marks to grades is a minor (if worthwhile) exam reform at best.

We laud the work of NCERT, CBSE, and the Kerala and Karnataka boards in popularising the virtues and reliability of grades among the general public, even at the risk of negative media publicity. Even

more will be needed to convince end-users, especially universities, of the value and necessity of grades. The issue of whether grades are to be based on absolute or relative scales and, if the latter, whether one uses percentiles, stanines, or whatever needs to be resolved by consensus among boards. Standardisation of a nine-point grading scale, for both 10th and 12th grade exams is also needed in order to offer inter-board comparability of results. Till such time as this consensus is reached, we recommend that marks be reported alongside grades to avoid sowing confusion.

11. *Transparency and fairness in mark sheets:* A reform which we believe to be of at least equal importance (as the issue of replacing marks by grades) is a fuller disclosure of how the student fares relative to his or her peers. Now, with computerization of registration and grade reporting, it is possible to present a wider range of performance parameters on the mark sheet—absolute marks/grades, percentile rank among all candidates of that subject, and percentile rank among peers (e.g., rural schools in the same block). Particularly the last parameter, we believe, is a crucial test of merit. For too long in India, we have reduced merit to a single mark per subject and a single overall percentage. Merit is a rather more complicated concept. Can we honestly assert that two students who both attain 75% in their board exams but with one having attended a school in South

Mumbai and another a school in rural Mulshi are equally meritorious? Has the latter not had to overcome greater systemic odds? School boards cannot force university admission committees, or the job market, to consider these factors. But printing this data on the mark sheet constitutes a start toward a fairer definition of merit.

2.8 School-based Assessment

While the primary mandate of this Focus Group was to suggest reforms for exams (as opposed to all assessment), we would like to make a brief plea for the importance of school-based assessment, and hope we can strengthen it in the medium term.

1) *Continuous and comprehensive evaluation (CCE)*: The group felt strongly that a school-based continuous and comprehensive evaluation system be established in order to (i) reduce stress on children, (ii) make evaluation comprehensive and regular, (iii) provide space for the teacher for creative teaching, (iv) provide a tool for diagnosis and for producing learners with greater skills. The CCE scheme should be simple, flexible, and implementable in any type of school from the elite one to a school located in rural or tribal areas. Keeping in view the broad principles of the scheme, each school should evolve a simple suitable scheme involving its teachers, and owned by the teachers.

2) *Issue of CCE certificate:* To make CCE effective, some weight to school-based

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[1] *In the words of Edmund Burke.*

assessment (SBA) should be given in the school-leaving certificate issued by State Education Boards. The certificate of the student's performance in the school, in all areas, should be issued along with the board certificate by the board. The performance should be shown in terms of grades in each area appropriate to the stage of schooling. The two types of assessments, i.e., internal and external, should, ideally, be shown separately in the certificate issued by the board. To begin with, 20% weightage may be given to CCE for class X.

3) *Keeping internal assessment honest:* The question of how to keep schools honest in internal grading is a burning one. Without guarantees of such honesty, end-users of board mark sheets have little interest in it. In general, we recommend a method of internal grading with external moderation (through random but mandatory sampling) by the board. In other words, designated samples of internally assessed work must be sent to the board in each subject. In cases where the board is satisfied with the quality, they should get its mark of approval. Otherwise, the remark accompanying the CCE mark on the mark sheet will read: 'Declared by school with no board authentication.' In cases where quality standards are met but the marks awarded are too high reference should be made to the school average for CCE—which would automatically deflate the attainment in the eyes of the end-user in cases of over-generous marking.

4) *Practical* Examinations: The shabby assessment of science practicals by schools, in most boards, with a majority of candidates getting full or near-full marks (often without even the experiment having taken place) is a good illustration of what happens when boards abdicate their responsibility to monitor and moderate samples of school-based evaluation. The checks suggested in the preceding paragraph need to be implemented without delay. If they cannot, the farce of school-assessed practicals must end and the science marks be given entirely on the basis of theory exams (which would have to then include a section on planning experiments). It would be unfortunate if it has to come to this as good experimentation and experimental skills are at the heart of the scientific enterprise. Unless laboratory assessment is made less farcical, the quality of the country's scientific manpower is under serious threat; the number of students interested in scientific pursuits is already stagnating in several states.

3. CONCLUSION

It should be clear from the above that board examinations in India need serious re-examining. This reality is deeply at odds with the spirit of self-congratulation and 'all is well' at the level of many exam board chairs and education department secretaries. Things will not improve if we continue to drape ourselves in "the fatal shroud of complacent self-esteem"[10]. At the same time, the Group felt energized by the enthusiasm for reform shown in

its many encounters with school teachers across the country. Such support from teachers is crucial. The success or failure of these reforms will rest on the importance accorded to teacher and examiner training. Much time, effort, and money will need to be invested in such training. Much of this can be accomplished through EDUSAT and distance learning for teacher training. The curriculum of pre-service teachers will also need to be revised. For in-service teacher training, a certificate/diploma course in Educational Measurement and Evaluation should be started by NCERT. *Reforming exams alone will attain very little unless it is accompanied by other basic reforms: improvement of teacher training, teacher quality and teacher-student ratio. In addition, making textbooks and the curriculum more relevant and interesting and challenging; and spending more on education (at all levels but now especially for the secondary level) will be vital.*

At the same time, it should be recognized that exam reform has the potential to lead educational reform. It has often been lamented that in Indian education the tail (assessment) has usually wagged the dog (of learning and teaching). The charge is a fair one and de-emphasising exams will certainly liberate the learning and teaching process from its straitjacket. But this pivotal position of exams in the educational system can be used to leverage advantage—to hasten reform within Indian education as a whole. As we have seen in many other areas of government in the last decade, once the winds of change begin to blow they sweep most cobwebs away. The tough job is to get them blowing.

APPENDIX 1

Recommended pilot programs to test some radical long-term reforms

- **Pilot I:** Already initiated in Karnataka, to move toward 60% or more of all exams toward the MCQ mode.

- **Pilot II:** Already existing in Turkey. A minimalist end-of-school exam. One three-hour 150 MCQ exam covering all subjects studied. Its sole purpose is to validate the school-given exam grades and to raise/lower them by a moderation factor.

- **Pilot III:** Open-book exams, and source-analysis based assessment. Also, exams without time limit.

- **Pilot IV:** The exam system must gradually move toward on-demand exams (they are usually done online, internationally) taken when the candidate is ready, rather than at the convenience of the system. We suggest a small beginning of this in computer science exams as a pilot project and its future expansion to maths and physics exams.

APPENDIX 2

Continuous and Comprehensive Evaluation (CCE)

The need for introducing CCE in schools in an effective and systematic manner has been felt for a long time. As the examinations conducted by the boards of school education have some shortcomings, greater importance is now given to CCE at the school level. Quite a few boards have developed schemes of CCE for implementation in schools. In some cases, the public school principals on their own have taken steps to introduce a periodic system of testing. In some states, the Government has taken initiatives for the periodic assessment in scholastic areas only and co-scholastic areas have been left out. CCE needs to be institutionalised for all stages of school education. In the present set-up, more importance is attached to the assessment by boards and school-based assessment is driven to the back seat. The scenario is now changing. Many school education boards are now emphasising the importance of CCE and have taken measures to implement it in schools with the cooperation of the State Education Departments. CCE should be viewed not as an alternative but complementary to board evaluation.

Features of CCE

a) Continuous and comprehensive evaluation (CCE) refers to a system of school-based evaluation of students that covers all aspects of students development.

b) The 'continuous' aspect of CCE takes care for 'continual' and 'periodicity' of evaluation.

c) Continual means assessment of students in the beginning of instructions (placement evaluation) and assessment during the instructional process (formative evaluation) done informally using multiple techniques of evaluation.

d) Periodicity means assessment of performance done frequently at the end of unit/term (summative) using criterion-referenced tests and employing multiple techniques of evaluation.

e) The 'comprehensive' component of CCE takes care of assessment of all round development of the child's personality. It includes assessment in scholastic as well as co-scholastic aspects of the pupils' growth.

f) Scholastic aspects include curricular areas or subject specific areas, whereas co-scholastic aspects include co-curricular and personal social qualities, interests, attitudes, and values.

g) Assessment in scholastic areas is done informally and formally using multiple techniques of evaluation continually and periodically. The diagnostic evaluation takes place at the end of unit/term test. The causes of poor performance in some units are diagnosed using diagnostic tests. These are purposefully re-mediated by giving interventions followed by retesting.

h) Assessment in co-scholastic areas is done using multiple techniques on the basis of identified criteria, while assessment in social personal qualities is done using behaviour indicators for various interests, values, attitudes, etc.

(a) Scholastic Areas

Level	Classes	Techniques	Tools	Periodicity and Recording	Reporting
Primary	I & II	• Observation • Oral • Written	• Observation schedule • Oral questions • Question paper • Diagnostic test	• Day-to-day observation and recording by the teachers • At the end of competency/ unit • Recording after the test	• Direct /absolute grading (three point)
	III, IV, & V	• Oral • Written	• Oral questions • Question paper • Assignment • Project • Diagnostic test	• Unit-wise • Monthly • Terminal • Recording after the test	• Absolute grading (three point)
Upper Primary	VI to VIII	• Oral • Written • Practical	• Oral questions • Question paper • Assignment • Project • Diagnostic test • Activity/experiment	• Unit-wise • Monthly • Terminal • Recording after the test	• Absolute grading (five point)
Secondary	IX & X	• Written • Practical • Viva voce	• Question paper • Assignment • Project • Practical (activity/ experiment) • Oral questions	• Unit-wise • Monthly • Terminal • Recording after the test	• Absolute grading (nine point)
Higher Secondary	XI & XII	• Written • Practical • Viva voce	• Question paper • Assignment • Project • Practical (activity/ experiment) • Oral questions	• Unit-wise • Monthly • Terminal • Recording after the test	• Absolute grading (nine point)

(b) Co-Scholastic Areas

S. No.	Co-Curricular Activities	Personal Social Qualities including Attitudes and Values
I	**Literary**	Cleanliness
	1. Reading/recitation	Cooperation
	2. Debate/speech Making	Punctuality/regularity
	3. Creative writing	Discipline/obedience
II	**Scientific**	Emotional stability
	1. Club activities	Initiative
	2. Nature study	Responsibility
	3. Computer literacy	Diligence
III	**Artistic**	Environmental awareness
	1. Drawing	Tolerance
	2. Painting	Appreciation of good qualities
	3. Embroidery	Leadership
	4. Craft	Truthfulness
	5. Sculpture	Patriotism
IV	**Cultural**	Social service
	1. Music (instrumental/vocal)	Civic sense
	2. Performing arts (dramatics/dance)	Diginity of manual labour
V	**Physical** (games/sports and yoga)	Respect for elders/others
	1. Indoor	Protection of environment
	2. Outdoor	Protection of cultural heritage
	3. Yogic exercises	
VI	**Miscellaneous**	
	1. First aid	
	2. Red Cross	
	3. Scouting	
	4. NCC	
	5. NSS	
	6. Adventure activities	
	7. Other hobbies	

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