



BLDE (Deemed to be University)  
Shri B. M. Patil Medical College Hospital  
and Research Centre Vijayapura  
**Medical Education Unit**

**'Being a Competent  
Medical Teacher'**

EDITOR

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# 11 LONG ESSAY QUESTIONS AND SHORT ANSWER QUESTIONS

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## Essay Questions-

Long Essay is one of the most effective ways of ascertaining how good a student is at – constructing a complex response to a challenging question. When constructing essay questions, it is essential to define the criteria on which the answers will be judged. A common pitfall is to “over-structure” these criteria in the pursuit of objectivity, and this often leads to trivialising the questions. Some structure and criteria are necessary, but too detailed structure provides little gain in reliability and a considerable loss of validity. Essays involve high costs, so they should be used sparsely and only in cases where short answer, open ended questions or multiple choice questions are not appropriate.

Most commonly these are used to evaluate a type performance, which can't be measured efficiently by other methods[ e.g. summary of document, comparison of two phenomenon, find the relationships]

On this basis this concept Long essay can be delivered in two contexts- **unseen and seen**

In the **unseen** a question is prepared and delivered denovo to students under examination.

In the **seen**, students are provided with a topic and given a time limit in which to address the question. In the unseen examination critical components of successful essay depends the memory {short+ long term} of the student.

**Essay quality also depends on –**

- 1- The ability of a student to construct sentences of appropriate length
- 2- Grammatically correct sentence
- 3- Organize their knowledge in a way that addresses question correctly.

Previously there was a practice, where in one single question to be answered in 3 hours.

Of late there is change in the traditional essay type to answer with reasoning and expression.

**e.g- Tradition style:** -1. write an essay on Health for all by 2000.

2. write an essay on family planning.

**Modern style:-**

1. Explain the concept of HFA by 2000AD and way & means of achieving it in India.
2. How would you organize a F.P. camp in a taluk head of your district.

**Advantages –**

1. Easy to construct
2. Framing of question is not difficult
3. Allows free and effective expression (open question)
4. Tests knowledge gained by learner
5. Brings out learner's reasoning capacity
6. Also brings out organizing ideas & planning.

**Disadvantages-**

1. Range of application of knowledge is limited to topic.
2. Questions lack objectivity
3. Time consuming (1hr) affects improper scoring system
4. Important error in long essay is- Halo/ Antihalo effects.

**Halo effect:** 1<sup>st</sup> answer in an essay type is so good that it influences evaluator for positive scoring to subsequent answers.

**Antihalo effect:** 1<sup>st</sup> essay answer is so bad that it influences evaluator for negative scoring for subsequent answers.

5. Due to literary ability & handwriting of the student examiner bias occurs.

### **Guidelines for making an essay question:**

1. Employ terms that cover the cognitive process that you are expecting to be used in answer. Such as “summarize or compare”, “evaluate” or “define” **rather than** “discuss, state”, examine”.
2. Limit the problem posed, so that it is clearly apparent to the candidate. Define the structure of the answer, describe the task clearly.
3. Have syllabus on hand & view it fully. Select a few topic in random to have good coverage.
4. Have check list & specific points for a good marking system, for every question construct a model answer or list the essential features expected.
5. Allow no choice among questions set [suggest no options].
6. Avoid complex language, such as double negatives, abbreviations.
7. Choose a problem or issue that can be addressed satisfactorily in the time allocated.
8. Give equal weight age to all topics[ not too easy/too difficult]
9. Questions should have clarity and standardized, without repetition.
10. Proofread the paper three times, using a different reader each time.

### **E.g. -**

1. Describe composition, Mechanism of secretion and regulation of gastric juice. Add a note on peptic ulcer. [10]
2. Define arterial blood pressure. Discuss neural regulation of blood pressure. Add a note on hypertension. [10]
3. Define epidemiology. Enumerate its uses. Outline the general methods of control of diseases with known etiology [10].

### **Evaluation of long question-**

1. Use a point system of scoring based upon those elements that are expected to appear.
2. Mark the papers anonymously to conceal the student identity.

3. When two or more teachers correct the same test, they should agree on the scoring procedure before and correct the papers separately.
4. Score the answers of the entire student to one question, before going on the scoring of another question- to avoid halo effect.

### **How to make an essay question objective?**

To overcome this drawback there are two common methods of structuring of an essay questions

- 1) Modified essay questions[M.E.Q]
- 2) Patient management problem[P.M.P]

**M.E.Q-** first developed in Australia & UK to overcome the major restrictions of sampling & scoring pertaining to traditional essay & patient management.

It presents a logical sequence of short answer questions, relating to an initial scenario or clinical problem. The questions can be- history taking and differential diagnosis or Line of management of a case or Investigation for a disease.

Which tests the integration of relevant knowledge in examinees intended action .Items must be attempted in strict sequence, without previewing the outcome of the problem.

While setting MEQ care must be taken to avoid any cues in questions. This can be avoided by computer presentation of the segments of MEQ. Model answers will help to evaluate better.

**Advantage-** MEQ allows high cognitive learning and at each setting there is scope for improvement in the knowledge.

**Constructing a MEQ-1)**decide first on the type of objectives that you wish to address- diagnosis, patient management etc, 2) How far it is possible to design the specific case without risking cueing? 3) Avoid vaguely worded questions.

**E.g-1]** Mrs. Brown, a 38 year old primary school teacher, complains fatigue, tachycardia. She has been admitted to general medical unit on which you work, for further investigation.

**Q1-** what are the three most likely observations?

**Q2-** list 5 specific questions that would help you distinguish between these possibilities?

A routine blood test reveals microcytic hypochromic anemia with Hb 9.8gm/dl.

**Q3-** List two typical signs you would look for when you examine the patient.

**Q4-** Did this information affect your 1<sup>st</sup> diagnosis? If yes, how explain briefly? In this e.g. computer delivery or physical removable of the answers to Q1,2 would be required before giving the information regarding anemia and asking Q3,4 to avoid both backward & forward cueing.

Q1-2 test the broad knowledge of such clinical presentation & initial diagnostic strategy requires understanding of clinical significance of scenario. Q3- tests linkage between data from investigation & subsequent questioning. Q4- Vague, which one of the Q1's three most likely diagnosis does Q4 refers to?

e.g. 2] Mr. J. Mathura is aged 26 and has recently diagnosed with mild essential hypertension. Since his hypertension is mild he is not keen to commence drug therapy, you decide to commence a trial of dietary therapy.

### **Question**

- a) Discuss the role of dietary sodium restriction in the treatment of hypertension
- b) Include epidemiological data supporting or refuting its use as well as evidence of its therapeutic effect. [This is testing trainee's understanding of basic science in relation to a clinical problem]

E.g. 3] short essays- cardiac output: Definition, normal value and factors affecting it (05)



4] Explain the functions and regulation of secretion of growth hormone (05)

### **Patient Management Problem {P.M.P}**

Here simulated patient management skill is assessed. It will help a learner in decision making. It also makes up the gap found in textbook learning, gives opportunity for patient care in emergency case handling, critical case handling and advanced ill case handling, casualty trauma, burns.[By verbal description, creating a model, creating a mannequin or by writing down clinical situation].

### **Written assessment format-**

#### **1. Method-** constructed – response format for [**Essay**]

Typical university essay, either seen/ unseen, where writer is required to describe, discuss and propose new perspectives on one or more issues. Answer may or may not be predetermined.

**Domain / response mode-** any situation where lengthy explanation is required, detailed synthesis of information; interpretation of literature; evaluation of management options is needed.

**Design factors-** questions can vary from blindingly obvious to the very obscure. Getting questions right takes time. Model answers/ protocols help marking.

**Limitations-** task may be misinterpreted. Long testing time for topic, limited coverage possible. Reliability variable, susceptible to candidate bias.

**Strengths-** total flexibility in question setting, Can avoid cueing. regarded as using higher order cognitive processes.

#### **2. Method-** constructed- response format for [**Modified Essay**]-

Specifically developed for medicine with track record in general practice. Highly structured case followed by questions on any aspect. Focused on candidate's management of a case. Answers usually predetermined.

**Domain and response mode-** clinical management issues. Some cue identification/ reasoning required to link eg. Signs, symptoms to investigation and management.

**Design factors-** can move from one stage of clinical management to another easily [diagnosis to patient management in same case]. More efficient sampling of a wide area of knowledge possible.

**Limitations-** need careful design to avoid cueing. As a result can be patchy in sampling knowledge across cases.

**Strengths-** can demand a wide range of cognitive processes. Can avoid cueing. May be machine scorable in 5-10 years.

## **SUMMARY**

1. Essay type questions have a distinct place in the assessment of cognitive skills. They are primarily used to assess learning outcomes of a higher level such as problem solving ability, which cannot be tested by other methods.
2. Open ended essays have severe limitations. They have little role in medical education.
3. Structured essay questions have several positive attributes. They have good reliability. They can be adapted to improve validity and to test problem solving ability.
4. Structured essay questions used in conjunction with checklist ensure a reasonably high objectivity.

## **Short answer questions (SAQ)-**

Frequently these are used as a means of measuring student's factual knowledge or understanding, for e.g in lectures/ward rounds.

In the verbal form they tend to be quite short, with in a specific context. Example-what is the most common feature of diabetic retinopathy we are likely to see in this patient?

Other major use if SAQ's is in assessments. Various methods exists, requiring the test taker to – complete the sentence or supply a missing

line[ Cloze test], give short descriptive or analytical answers or diagrams. Such questions can demand a wide range of responses, one or several words to paragraph to page.

### **Advantage-**

1. unlike the MCQ's they require the students to construct the answer rather than choosing /guessing from provided options .thus avoiding cueing.
2. Easier to mark than essay questions, usually involve a structured marking sheet.
3. One word answers are computer scorable but more than a few words requires a marker.
4. Items should be marked with assessors blind to the identity of candidates, different examiners allocated to different questions. In this way examiner bias is diluted for each candidate.

### TYPES OF SAQs

The common forms that SAQs can take are the following:

1. **Completion items:** These consist of incomplete statements, the examinee having to supply the missing words, terms, symbols etc. These are also commonly called 'fill in the blanks' type of questions.
2. **Definitions:** Anemia, cardiac output, GFR, ovulation etc.
3. **Unique answer type:** These take the form of actual questions, the examinee having to supply a specific answer.
4. **Label/draw diagrams**
5. **Numerical problems:** While numerical problems can be presented as multiple choice test items, they are more often Presented in short answer form. Numerical problems provide the basis for a wide variety of test items in medical sciences where values of concentration of essential components within tissues and body fluids need to be learnt and in any field of study where exact quantitative relationships are required to be developed. The answers to numerical problems are usually concise and hence easy to score.
6. **'Open' SAQs:** These are similar to unique answer questions except that they allow for some variation in the nature of the answer, either in terms of its intrinsic content or in terms of the way in which it is expressed, e.g. list advantages/disadvantages/indications, give examples, etc.

7. **Problem solving items:** If SAQ approach is felt to be appropriate, it must be decided, which particular type of SAQ item will be most appropriate for testing various topics and skills.

#### **Guidelines for constructing short- answer questions(SAQ)-**

1. Choose the most appropriate SAQ format for the objective- a Cloze or completion item, an open word or phrase answer.
2. Identify the specific learning objective the item covers, generally in the area of factual recall, comprehension, application or analysis.
3. Question should be clear, unambiguous and with simple language.
4. A good SAQ tests factual knowledge or capacity to analyze and clinically interpret a scenario.
5. It is good practice to give the test taker an indication of length of answer required/ allocated marks for that question.
6. Where a numerical answer has to be supplied for e.g calculation based on clinical data indicate both- a] degree of precision expected and b] the appropriate units to be indicated.

In SAQ's cognitive task set to the test taker is more important than response format. In medicine SAQ's have been used successfully as a reliable alternative to MCQ items in a progress test in Netherlands(R) and SAQ tests could produce better retention of information over time.

**Short answer –open ended questions**-this is an open ended question, which requires the candidate to generate a short answer not more than one or two lines. e. g –which muscle origin is affected in the condition of 'tennis elbow'?

This involves series of questions drafted in such a way that the answer calls for a predetermined & precise concept. The answer expected is short & open ( can be expressed in different forms)The author of the question must define in advance (in cooperation with colleagues) the answer, called for by the wording of the question.

If it appears that – by concept different answers will do for a given question, and then it should be rearranged until the drawback disappears.

Short open – answers are also called “**restricted response tests**”

A set of short, open answer questions preceded by a case history is called- “modified essay questions”. Open ended questions are more flexible—in that they can test issues that require, for example, creativity, spontaneity—but they have lower reliability. Because answering open ended questions is much more time consuming than multiple choice questions, they are less suitable for broad sampling. When writing open ended questions it is important to describe clearly how detailed the answer should be—without giving away the answer. A good open ended question should include a detailed answer key for the person marking the paper. Short answer, open ended questions are not suitable for assessing factual knowledge; use multiple choice questions instead.

Short answer, open ended questions should be aimed at the aspects of competence that cannot be tested in any other way.

### **Written assessment formats**

1. **Method**- constructed- response format-

**Short answer (SA)**- A short question that asks for a constructed specific answer, requires usually one word or short phrase, a line or two of text. Answers mostly predetermined.

**Extended short answer(open ended)**: a question that asks for an extended answer, usually requiring a paragraph. May address different aspects or extension of the issue. Answer may be predetermined.

2. **Domain and response mode**: **SA** - recall specific facts or statement about biomedical or clinical processes. **extended SA**- recall of groups of concepts or short explanations.

3. **Design factors**: **SA** -simple to construct, can sample widely different domains knowledge easily. **Extended SA** - can sample widely different domains of knowledge in more depth than SA.

4. **Limitations**: **SA**- wide variety of formats and little research on their use / psychometric properties, can lead to cueing.

**Extended SA** -same as above, scoring more difficult, involves multiple attributes of answers involved in essay construction. Recent research can give more insight into level of functioning of candidate.

**5. Strengths: SA;** Scoring by machine becoming a reality. Can replace MCQ's, where recall is thought to be vital (decisions based on core knowledge and experience).

**Extended SA;** total flexibility in question setting.

**Conclusion-** written test like SAQ, MEQ and LEQ have common advantage to medical teachers interested in measuring how well a examinee can integrate and apply clinical knowledge without the patient or examiner being present.

Short answer questions are more versatile to set ; provide comprehensive sampling of knowledge, and easiest to mark.

Modified essay, long essay questions, however have the capacity to present/ or require a systematic outline of an examinee's approach to solving or managing a simulated problem.

Procedures have been recommended for construction of these tests which should make them more valid & reliable. It will improve the educational value of any written examination for both examiner and examinee. Choosing the best question type for a particular examination is not simple. A careful balancing of costs and benefits is required. A well designed assessment programme will use different types of question appropriate for the content being tested.

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