

Please note, this document is for EBO-internal purposes only and is not intended for publication. Its purpose is to provide a clear, quick reference to writing questions for EBO exams.

Questions format and content

There are 3 types of exam questions that will be used for the EBO diploma exam, Multiple Choice questions (MCQ), Single Best Answer (SBA) and Structured Viva Voce (aka Clinical cases for online exams) (VV/CC).

MCQ questions format and content

Please submit your MCQ questions using the EBO MCQ Form (appendix 1).

MCQ questions have to be written using a specified format, namely a stem followed by 5 multiple independent true/false statements. Please make sure that spelling and grammar are correct and follow the EBO writing style. Please also refer to the National Board Medical Examiner guide to avoid common mistakes when writing exam questions (appendix 2).

We recommend that, whenever possible, you include a relatively easy statement, three intermediate and one relatively difficult statement for each MCQ.

Please tick on the EBO MCQ Form which area of the EBO curriculum the question is mapped to and any reference books related to the question.

SBA questions format and content

SBA questions follow this format:

- There is a stem (also known as vignette) which provides background clinical information
- There is a lead-in statement or a question usually as a single line
- There are 4 options, only one of which is correct or the “best” course of action and three distractors

Example from NBME guide

Sample Stem (Vignette & Lead-in) With Option Set



VIGNETTE:

A 32-year-old man comes to the office because of a 4-day history of progressive weakness in his extremities. He has been healthy except for an upper respiratory tract infection 10 days ago. His temperature is 37.8°C (100.0°F), pulse is 94/min, respirations are 42/min and shallow, and blood pressure is 130/80 mm Hg. He has symmetric weakness of both sides of the face and the proximal and distal muscles of the extremities. Sensation is intact. No deep tendon reflexes can be elicited. Babinski sign is absent.

LEAD-IN:

Which of the following is the most likely diagnosis?

OPTION SET:

- A. Acute disseminated encephalomyelitis
- B. Guillain-Barré syndrome*
- C. Myasthenia gravis
- D. Poliomyelitis
- E. Polymyositis

Note that the incorrect options are not wholly wrong. The options can be diagrammed as follows:



Even though the incorrect options are not completely wrong, they are less correct than the "keyed answer" (indicated by the asterisk in the option set). The test-taker is instructed to select the "most likely diagnosis." Experts would all agree that the most likely diagnosis is B; they would also agree that the other diagnoses are somewhat likely, but less likely than B. As long as the options can be laid out on a single continuum, in this case from "Least Likely Diagnosis" to "Most Likely Diagnosis," distractors in one-best-answer items do not have to be totally wrong.

General advice on writing SBAs/VV/CC

Because candidates are required to select the single best answer, SBAs, VV and CC must satisfy the following rules:

- Each item should focus on an **important concept or testing point**.
- Item and option text must be **clear and unambiguous**. Avoid imprecise phrases such as “is associated with” or “is useful for” or “is important”; words that provide cueing such as “may” or “could be”; and vague terms such as “usually” or “frequently.”
- Each item should **assess application of knowledge**, not recall of an isolated fact. Please refer to the EBOD exam syllabus when writing questions.
- The lead-in should be closed and focused and ideally worded in such a way that the candidate can cover the options and guess the correct answer. This is known as the **best practice cover test** (SBAs only).
- Incorrect options can be partially or wholly incorrect.
- All questions will be **reviewed to identify and remove errors** that add irrelevant difficulty or benefit savvy candidates.

What to include in a stem

A stem should contain only clinical information that is relevant to the case. It usually contains patient details (age, gender, presenting complaint, relevant past medical history, visual acuity, examination findings, blood test results/imaging results if relevant). It is advised to provide raw data (eg “Visual acuity was 0.1”). As guidance, aim to use no more than 100 words.

DO NOT include superfluous details.

DO NOT include the reader (eg “You are a junior doctor working in eye casualty when a patient ...”).

DO NOT use the past tense.

DO NOT use abbreviations except for units of measurements (eg mmHg).

DO NOT include pathognomonic terms that would give away the diagnosis (eg “there are Trantas’ dots”).

How to phrase a lead-in/clinical question

Ask for the BEST answer, NOT true/false. Examples:

“What is the most likely diagnosis?”

“What would be the most appropriate initial management?”

“Which of the following investigations would be the most appropriate to perform first?”

DO NOT use negative forms (eg “What is the least likely diagnosis?”).

DO NOT write lead-ins that can be answered without reading the stem.

Specific advice for SBA answer options

Provide 4 concise answer options. All options should be **homogeneous and plausible** to avoid cueing to the correct option. Avoid mix and matching (eg all 4 answers should be diagnosis/investigation/treatment). All answers should be **plausible** but one should be better or more likely than the others. Ask yourself “What do candidates usually confuse this concept with?”. Please choose evidence-based sources or widely accepted management options when writing your answers. Finally, please order your answer logically (eg alphabetically or anatomically).

DO NOT choose answer that are statistically most likely to be correct as they could be “guessed”.

DO NOT use statements like “Which of the following statements is correct?” as it does not pass the best practice cover test.

DO NOT make one answer stand out by being the longest or the shortest.

Specific advice for structured Viva Voce questions or Clinical Cases

Structured Viva Voce is a better assessment tool as compared to traditional viva voce as it is more objective, brings uniformity, and prevents bias and variability on the part of examiner. There are 8 Structured Viva Voce exam questions, divided in 4 Topics and each question should be answered in 10 minutes. In online exams, 5 points are usually allocated to each question, for a total of 10 points per topic.

A good VV question is based on a clinical scenario and it has to be aligned with the EBO syllabus. You need to start identifying a learning outcome for this clinical scenario and then use learning outcomes as a blueprint for creating the question. Please remember to make the question accessible and clear to understand, following the general principles stated above. It is often helpful thinking along the lines of

- Must know
- Good to know
- Nice to know

so that question points should be allocated accordingly. Please indicate this in your answers.

Each VV question should begin with a stem (clinical scenario) and the same principles of writing stems for SBA apply (see above). However there will be multiple lead-ins (4-5 per case). Lead-in should be presented in the following order:

- 1) Identifying key findings
- 2) Ordering or interpreting test results
- 3) Formulating a diagnosis
- 4) Produce a management/treatment plan
- 5) Discuss complications/treatment side effects/follow-up if appropriate

You might decide to include all or some of the lead in above. Please ensure that you have the copyright for any images included or choose images with a Creative Commons licence or that are in the public domain. Finally, remember that candidates can navigate backwards so ensure that stem/lead-ins contain no clues relative to previous questions.

Given that candidates can freely formulate their answer, it is mandatory to provide a list of keywords/accepted answers when you submit your question. This list will be used by the Speedwell system to score automatically. It will be also used by the Examination Committee in order to create a scoring table for face to face exams.

DO NOT use blurred, low quality images.

DO NOT choose yes/no questions as it will not test higher order thinking skills.

DO NOT formulate vague questions as it will mislead candidates.

DO NOT expect from the candidates the level of expertise of a specialist in that particular topic.

DO NOT choose controversial topics.

EBO Writing style

British English spelling (eg paediatric instead of pediatric).

Avoid italic script as it is difficult to read for dyslexic candidates.

Please use unhyphenated adjectives (eg A 21 year old man) or disease names (eg Guillain Barre).

Visual acuity should be expressed in decimals.

Include normal value ranges in the stem.

References

National Board Medical Examiners Guide

Smith, P. Writing better single-best answer (SBA) questions: beyond the cover test, Academy of Medical Educators website

Walsh JL et al. Single best answer question-writing tips for clinicians. Postgrad Med J 2017; 93:76-81.

Abdul Rahim AF et al. A guide for writing single best answer questions to assess higher-order thinking skills based on learning outcomes. Education in Medicine Journal. 2022; 14(2):111-124.

Appendix 1: MCQ form

Appendix 2: A Summary of Common Flaws to Avoid (from NBME guide)

Issues Related to Irrelevant Difficulty	
FLAWS	SOLUTIONS
Long, complex options	<ul style="list-style-type: none"> • Put common text in stem • Use parallel construction in options • Shorten options
Tricky, unnecessarily complicated stems	<ul style="list-style-type: none"> • Include content that is necessary to answer the question or to make distractors attractive • Avoid teaching statements
Inconsistent use of numeric data	<ul style="list-style-type: none"> • Avoid overlapping options • Ask for minimum or maximum value to avoid multiple correct answers
Vague terms	<ul style="list-style-type: none"> • Avoid frequency terms, like usually and often. Such terms are interpreted differently by different people
“None of the above” option	<ul style="list-style-type: none"> • Replace “None of the above” with specific action (eg, No intervention needed)
Nonparallel options	<ul style="list-style-type: none"> • Edit options to be parallel in grammatical form and structure
Negatively structured stem (eg, “Each of the following EXCEPT”)	<ul style="list-style-type: none"> • Revise lead-in to have a positive structure • If possible, use correct options to create a scenario
Cues to the Testwise Examinee	
FLAWS	SOLUTIONS
Collectively exhaustive options (subset of options cover all possibilities)	<ul style="list-style-type: none"> • Replace at least one option in subset • When revising, avoid creating option pair
Absolute terms (“always,” “never”) in options	<ul style="list-style-type: none"> • Eliminate absolute terms • Use focused lead-in and short homogeneous options

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Cues to the Testwise Examinee	
FLAWS	SOLUTIONS
Grammatical clues (where grammatical differences may act as a clue)	<ul style="list-style-type: none"> • Make all options singular or all options plural • Use closed lead-ins

Appendix 2: Question Quality Checklist

Use this checklist (if you wish) to check you are following the NBME advice in writing your questions.

<i>Item meets the following:</i>	
	✓ Question is in the recommended format

	✓ Item addresses knowledge that would be expected of the <u>target candidate</u> .
	✓ Item and option text is clear and unambiguous (more info here)
	✓ Item assesses application of knowledge , not just factual content / concepts (more info here)
	✓ Options are homogenous and plausible (more info here)
<i>Item avoids the following:</i>	
	× Long, complex options
	× Tricky, unnecessarily complicated stems
	× Inconsistent use of numeric data
	× Vague terms
	× “None of the above” option
	× Nonparallel options
	× Negatively structured stem (eg, “Each of the following EXCEPT”)
	× Collectively exhaustive options (subset of options cover all possibilities)
	× Absolute terms (“always,” “never”) in options
	× Grammatical clues (where grammatical differences may act as a clue)
	× Correct answer stands out
	× Word repeats (clang clue)
	× Convergence (where the correct option has one element from the other options, so that the candidate can figure out the correct option)