Pattern of Question Papers and Marking Scheme

Pattern of Question Papers

In all the papers, there will be a total of 65 questions carrying 100 marks, out of which 10 questions carrying a total of 15 marks are in General Aptitude (GA).

In the papers bearing the codes AE, AG, BT, CE, CH, CS, EC, EE, IN, ME, MN, MT, PE, PI, TF and XE, the Engineering Mathematics will carry around **15% of the total marks,** the General Aptitude section will carry **15% of the total marks** and the **remaining 70% percentage of the total marks** is devoted to the subject of the paper.

In the papers bearing the codes AR, CY, EY, GG, MA, PH and XL, the General Aptitude section will carry **15% of the total marks** and the **remaining 85% of the total marks** is devoted to the subject of the paper.

GATE 2016 would contain questions of two different types in various papers:
(i) Multiple Choice Questions (MCQ) carrying 1 or 2 marks each in all papers and sections. These questions are objective in nature, and each will have a choice of four answers, out of which the candidate has to mark the correct answer(s).
(ii) Numerical Answer Questions of 1 or 2 marks each in all papers and sections. For these questions the answer is a real number, to be entered by the candidate using the virtual keypad. No choices will be shown for this type of questions.

Design of Questions

The questions in a paper may be designed to test the following abilities:
(i) Recall: These are based on facts, principles, formulae or laws of the discipline of the paper. The candidate is expected to be able to obtain the answer either from his/her memory of the subject or at most from a one-line computation.
Example
Q. During machining maximum heat is produced
(A) in flank face
(B) in rake face
(C) in shear zone
(D) due to friction between chip and tool

(ii) Comprehension: These questions will test the candidate's understanding of the basics of his/her field, by requiring him/her to draw simple conclusions from fundamental ideas.
Example

Q. A DC motor requires a starter in order to
(A) develop a starting torque
(B) compensate for auxiliary field ampere turns
(C) limit armature current at starting
(D) provide regenerative braking

(iii) Application: In these questions, the candidate is expected to apply his/her knowledge either through computation or by logical reasoning.
Example
Q. The sequent depth ratio of a hydraulic jump in a rectangular channel is 16.48. The Froude number at the beginning of the jump is:
(A) 5.0 (B) 8.0 (C) 10.0 (D) 12.0
Examples of each of this design is given in the types of questions above.
The questions based on the above logics may be a mix of single standalone statement/phrase/data type questions, combination of option codes type questions or match items type questions.

(iv) Analysis and Synthesis: In these questions, the candidate is presented with data, diagrams, images etc. that require analysis before a question can be answered. A Synthesis question might require the candidate to compare two or more pieces of information. Questions in this category could, for example, involve candidates in recognising unstated assumptions, or separating useful information from irrelevant information.

Marking Scheme

For **1-mark** multiple-choice questions, **1/3 marks** will be deducted for a wrong answer. Likewise, for **2-marks** multiple-choice questions, **2/3** marks will be deducted for a wrong answer. There is no negative marking for numerical answer type questions.

General Aptitude (GA) Questions

In all papers, GA questions carry a total of **15 marks.** The GA section includes 5 questions carrying **1** mark each (sub-total **5 marks**) and 5 questions carrying **2**marks each (sub-total 10 marks).

Question Papers other than GG, XE and XL

These papers would contain **25** questions carrying **1 mark** each (sub-total **25 marks**) and **30** questions carrying **2 marks** each (sub-total **60 marks**). The question paper will consist of questions of multiple choice and numerical answer type. For numerical answer questions, choices will not be given. Candidates have to enter the answer (which will be a real number, signed or unsigned, e.g. 25.06, -25.06, 25, -25 etc.) using a virtual keypad. An appropriate range will be considered while evaluating the numerical answer type questions so that the candidate is not penalized due to the usual round-off errors.

GG (Geology and Geophysics) Paper

Apart from the General Aptitude (GA) section, the GG question paper consists of two parts: Part A and Part B. Part A is common for all candidates. Part B contains two sections: Section 1 (Geology) and Section 2 (Geophysics). Candidates will have to attempt questions in Part A and either Section 1 or Section 2 in Part B.
Part A consists of 25 multiple-choice questions carrying 1-mark each (sub-total 25 marks and some of these may be numerical answer type questions). Each section in Part B (Section 1 and Section 2) consists of 30 multiple choice questions carrying 2 marks each (sub-total 60 marks and some of these may be numerical answer type questions).

XE Paper (Engineering Sciences)

In XE paper, Engineering Mathematics section (Section A) is **compulsory.** This section contains **11** questions carrying a total of **15 marks:** 7 questions carrying **1 mark** each (sub-total **7** marks), and 4 questions carrying **2 marks** each (sub-total **8** marks). Some questions may be of numerical answer type questions.
Each of the other sections of the XE paper (Sections B through G) contains 22 questions carrying a total of **35** marks: 9 questions carrying **1 mark** each (sub-total**9** marks) and 13 questions carrying **2 marks** each (sub-total **26** marks). Some questions may be of numerical answer type.

XL Paper (Life Sciences)

In XL paper, Chemistry section (Section H) is **compulsory.** This section contains **15** questions carrying a total of **25 marks:** 5 questions carrying **1 mark** each (sub-total **5** marks) and 10 questions carrying **2-marks** each (sub-total **20** marks). Some questions may be of numerical answer type.
Each of the other sections of the XL paper (Sections I through M) contains 20 questions carrying a total of 30 marks: 10 questions carrying 1 mark each (sub-total 10 marks) and 10 questions carrying 2 marks each (sub-total 20 marks). Some questions may be of numerical answer type.

Note on Negative Marking for Wrong Answers

For a wrong answer chosen for the multiple choice questions, there would be negative marking. For **1-mark** multiple choice questions, **1/3 mark** will be deducted for a wrong answer. Likewise, for **2-mark** multiple choice questions, **2/3** mark will be deducted for a wrong answer. **However, there is no negative marking for a wrong answer in numerical answer type questions.**