A Guideline for Scientific Thought Judging
(Maximum 45 Marks)

EXPERIMENT TYPE PROJECT	**STUDY TYPE PROJECT**	**INNOVATION TYPE PROJECT**
DEFINITION: An investigation undertaken to test a specific hypothesis. Experimental variables if identified are controlled to some extent	**DEFINITION:** A collection and analysis of data to reveal evidence of a fact or a situation of scientific interest. It could include a study of cause and effect relationships involving ecological, social, political or economic considerations; in depth studies, or theoretical investigations. Variables, if identified, are by their nature not feasibly controlled	**DEFINITION:** Involving the development and evaluation of innovative devices, models or techniques or approaches in fields such as technology, engineering, or computers (both hardware and software).
EXPERIMENT level 1 Duplication of a known experiment to confirm the hypothesis. The hypothesis is very predictable. 5 + 1,2,3,4,5,6,7,8,9 or 10	**STUDY level 1** Study of existing printed material related to the basic issue. 5 + 1.2,3,4,5,6,7,8.9 or 10	**INNOVATION level 1** Building models (devices) to duplicate existing technology. 5 + 1,2,3,4,5,6,7,8,9 or 10
EXPERIMENT level 2 Extend a known experiment through modification of procedures, data gathering and application. 15 + 1,2,3,4,5,6,7.8,9 or 10	**STUDY level 2** Study of material collected through compilation of existing data and through personal observations. Display attempts to address a specific issue. 15 + 1,2.3,4,5,6,7.8,9 or 10	**INNOVATION level 2** Improving, or demonstrating new applications for existing technological systems or equipment and justifying them 15+ 1,2,3,4,5,6,7,8,9 or 10
EXPERIMENT level 3 Devise and carry out an original experiment with controls. Variables are identified. Some significant variables are controlled. Data analysis includes graphic presentation with simple statistics. 25+ 1,2,3,4,5,6,7,8,9 or 10	**STUDY level 3** Study based on observations and research of the literature illustrating various options for dealing with a relevant issue. Appropriate arithmetic, graphical, or statistical analysis in relation to some significant variable(s). 25+ 1,2,3,4,5,6,7,8,9 or 10	**INNOVATION level 3** Design and build innovative technology or provide adaptations to existing technology that will have economic applications and/or human benefit. 25+ 1,2,3,4.5.6,7.8,9 or 10
EXPERIMENT level 4 Devise and carry out original experimental research that attempts to control or investigate most significant variables. Data analysis includes statistical analysis. 35+ 1,2,3.4.5.6,7,8,9 or 10	**STUDY level 4** Study correlating information from a variety of significant sources that may illustrate cause and effect or original solutions to current problems through synthesis. Significant variable(s) identified with in-depth statistical analysis of data. 35+ 1,2,3.4,5,6,7,8,9 or 10	**INNOVATION level 4** Integrate several technologies, inventions or designs and construct an innovative technological system that will have commercial and/or human benefit. 35+ 1,2,3,4,5,6,7,8,9 or 10