



**PART A: SCIENTIFIC THOUGHT - CREATIVE ABILITY (Maximum: 50 marks)**

SCIENTIFIC THOUGHT			CREATIVITY							
EXPERIMENT	INNOVATION	STUDY	LEVEL 1 (poor)		LEVEL 2 (fair)		LEVEL 3 (good)		LEVEL 4 (excellent)	
<b>Definition:</b> An investigation undertaken to test a scientific hypothesis using experiments. Experimental variables, if identified, are controlled to some extent.	<b>Definition:</b> The development and evaluation of innovative devices, models, or techniques or approaches in technology, engineering, or computers (hard/software)	<b>Definition:</b> 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 or theoretical investigations of scientific data.	Little imagination shown, Project design is simple with minimal student input. A textbook or magazine type project.		Some creativity shown in a project of fair to good design. Standard approach using common resources or equipment. Topic is a current or common one.		Imaginative project. Good use of available resources. Well thought out above ordinary approach. Creativity in design and or use of materials.		A highly original project or a novel approach. Shows resourcefulness, creativity in design, use of equipment and/or construction of a project.	
Level 1 (poor) Duplication of a known experiment to confirm a totally predictable hypothesis.	Level 1 (poor) Build models (devices) to duplicate existing technology.	Level 1 (poor) Study existing printed material related to a basic issue.	20	21	24	25	28	29	32	33
			22	23	26	27	30	31	34	35
Level 2 (fair) Extend a known experiment through modification of procedures, data gathering, and application.	Level 2 (fair) Make improvements to, or demonstrate new applications for existing technological systems or equipment and justify them.	Level 2 (fair) Study material collected through compilation of existing data and through personal observations. The display attempts to address a specific issue.	25	26	29	30	33	34	37	38
			27	28	31	32	35	36	39	40
Level 3 (good) Devise/carry-out an original experiment with controls. Variables are identified and some significant variables are controlled. Analysis with graphs or simple statistics.	Level 3 (good) Designing and building innovative technology or providing adaptations to existing technology that will have economic applications and or human benefit.	Level 3 (good) Study based on observations and literary research illustrating various options for dealing with a relevant issue. Appropriate analysis (arithmetical, statistical, or graphical) of some significant variable(s).	30	31	34	35	38	39	42	43
			32	33	36	37	40	41	44	45
Level 4 (excellent) Devise and carry out original experimental research, which attempts to control or investigate most significant variables. Data analysis includes statistical analysis.	Level 4 (excellent) Integrate several technologies, inventions or designs and construct an innovative technological system that will have commercial and/or human benefit.	Level 4 (excellent) 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) are identified with in-depth statistical analysis of data	35	36	39	40	43	44	47	48
			37	38	41	42	45	46	49	50