An Interim Report of the Examination Reforms Committee

Questioning the Questions

(Part I: Analysis of Question Papers of the University Examinations (CSS) in Teaching Departments)

Internal Quality Assurance Cell
University of Kerala
2017

"Questioning the Questions"

Part I : ***Analysis of Question Papers of the University Examination (CSS) in Teaching Departments***

Contents

Analysis of Question Papers of the University Examination (CSS) in Teaching Departments

1. Findings and Recommendations

Findings:

The committee analysed 286 Question Papers. The spread of the questions according to different levels defined by Bloom's Taxonomy in the University examinations in PG Programme of University Teaching Departments (2017) are as follows:

Blooms Taxonomy Level	Percentage of Questions			
	Science & Technology	Social Sciences	Arts & Humanities	Overall
Remembering (Re)	2	8	12	7
Understanding (Un)	65	52	41	53
Applying (Ap)	8	11	16	12
Analysing (An)	17	19	11	16
Evaluating (Ev)	4	9	17	10
Creating (Cr)	3	0.45	3	2

- **The distribution of questions is heavily skewed towards lower levels of "Remembering" and "Understanding".**
- **The percentage of questions in the category "Remembering" is reasonably low, 2-12% only. Therefore the common perception of University examinations being based purely on memory recall questions is not completely true.**
- **Highest level of "Evaluating" and "Creating" is seen to be meagre.**

Recommendations

- **Training be given to all teachers on setting good quality question papers**
- **This report be printed and circulated to all teachers**
- **Periodic evaluation of question papers be done to monitor the changes & take further steps for motivating and training teachers**

2. Report on the Analysis of Question papers of the University Examination (CSS) in Teaching Departments

Examination has been identified as a major area for quality enhancement by the IQAC of University of Kerala in its Master Action Plan (MAP) for Quality Enhancement, adopted in 2015. Examination reforms in University of Kerala during recent times are seen to be mostly confined to administration of examinations, a challenging task. However reforms in the pedagogic aspects of examination are equally challenging, if not more. To those who are familiar with the question papers of the past in our University; it is immediately evident that these important instruments remain without much change over decades and are indirectly re-defining our curriculum, unfortunately, in an undesirable manner.

IQAC constituted a committee in 2017 to start taking a critical look at the question papers of University Examinations (CSS PG exams). As an initial step, the committee has compiled question papers of 2017 in University teaching departments and attempted to label each question at different levels defined in revised Bloom's taxonomy[1]. Revised Bloom's taxonomy classifies cognitive objectives to 6 levels, as follows:

- ***Remembering***
- ***Understanding***
- ***Applying***
- ***Analysing***
- ***Evaluating***
- ***Creating***

We append a detailed note on Bloom's taxonomy, for those who are interested in a detailed account. Even without much scholarly discussion, the above levels are understandable by a teacher. When our question papers address all the above levels, then it implies that our learning too will. Therefore the committee set out to take stock of the spread of questions with respect to these levels (We were curious to verify the common hear-say in Kerala academia as our hypothesis – *that our exam are memory–recall based*. This has historic roots – that of "*Manappadam*" of traditional *"Pallikoodams"* that refuse to go away).

We received 286 question papers from the Controller of Examinations, related to CSS end-semester PG examinations of 2017 (Another subcommittee is entrusted with analysis of internal assessments question papers). We grouped the question papers into three stream: Science & Technology, Social Sciences and Arts & Humanities.

[1]*Anderson, L. W., Krathwohl, D. R., & Bloom, B. S. (2001). Taxonomy for learning, teaching, and assessing: a revision of Bloom's taxonomy of educational objectives. New York: Longman.*

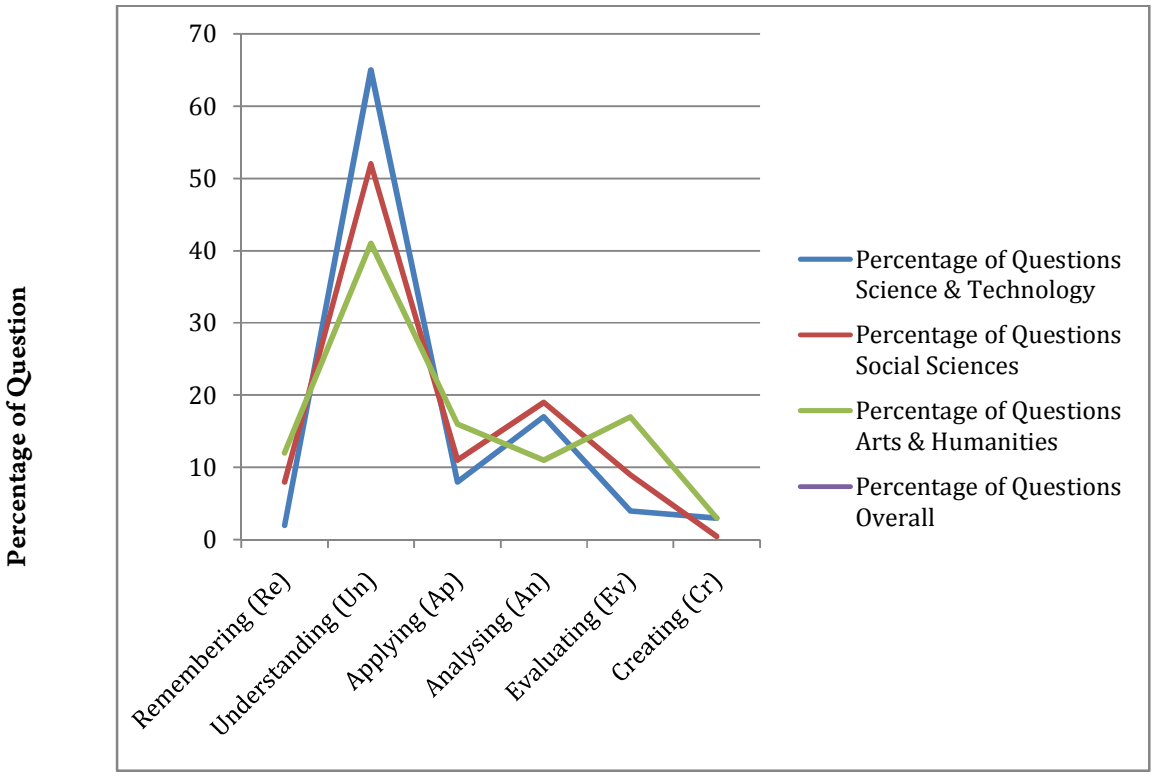
We then labeled each question as Re (Remembering), Un (Understanding), Ap (Applying), An (Analysing), Ev (Evaluating). Only the action words used in the questions have been taken into consideration while analysing, neglecting the content or context associated with it, due to various limitations. The study was limited with respect to the analysis of levels only. Also wherever there was ambiguity regarding the cognitive level of a question between the two adjacent levels, the higher level was taken into consideration, as suggested by non-conservative principle. No analysis has been done on the basis of content, form of question, marking scheme and time allotted.

Our analysis reveals, not unexpectedly, that the percentage of questions in different categories is heavily skewed to lower levels of "Remembering" and "Understanding". However, the hypothesis that exams are memory-recall based is not correct, as only 2-12% of questions are seem to be memory-recall based. It is the humanities stream that seems to have a reasonable spread of different types of questions whereas science and technology has a very uneven spread, with heavy focus on "Understanding" (65%).

Type Analysis of Question Papers used in PG Programmes in University of Kerala (2017)

Blooms Taxonomy Level	Percentage of Questions			
	Science & Technology	Social Sciences	Arts & Humanities	Overall
Remembering (Re)	2	8	12	7
Understanding (Un)	65	52	41	53
Applying (Ap)	8	11	16	12
Analysing (An)	17	19	11	16
Evaluating (Ev)	4	9	17	10
Creating (Cr)	3	0.45	3	2

Table 1: Spread of Questions according to Bloom's Taxonomy Levels in in the question papers of CSS PG Examination (2017)



The Committee has documented the whole exercise in this report and appended to it some useful material that will trigger newer ways of questions. These are from Benjamin Bloom and his colleague Walker Hill. Benjamin Bloom had on the invitation of Govt. of India, conducted a workshop of Indian teachers to produce new models of questions in 1950s. We have appended some of them. Walker Hills (of Michigan State University) served in the University of Calicut in 1971-72 and produced in excellent material that might influence teachers. These are also appended. A detailed description of the revised Blooms Taxonomy is also appended for further reference.

We have also included a compilation of questions from teachers of the University in different subjects, which we hope, will be models that will trigger new ideas. We hope that this document will serve as a base document for examination reform in the pedagogic perspective in the University Teaching departments.

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3. Table of Distribution of Question Paper Categories

based on Revised Bloom's Taxonomy of Educational Objectives

Stream: Science Stream (124 Question Papers)

Legend:

Re: Remembering	**Ap: Applying**	**Ev: Evaluating**
Un: Understanding	**An: Analysing**	**Cr: Creating**

Summary of distribution of questions in different categories:

Category>	Re	Un	Ap	An	Ev	Cr
Count>	43	1309	168	347	85	63
Percentage>	2	65	8	17	4	3

Code	Sub	Re	Un	Ap	An	Ev	Cr
C-2970	M.Sc. Aqt.Bio& Fisheries	0	8	0	0	0	0
C-2971	M.Sc. Aqt.Bio& Fisheries	0	6	3	1	0	0
C-2972	M.Sc. Aqt.Bio&Fisheries	0	8	1	0	0	0
C-2973	M.Sc. Aqt.Bio& Fisheries	1	11	1	3	0	0
C-2974	M.Sc. Aqt.Bio& Fisheries	0	11	0	3	0	0
C-2976	M.Sc. Actuarial Science	1	5	5	11	0	0
C-2977	M.Sc. Actuarial Science	0	2	0	8	0	0
C-2978	M.Sc. Actuarial Science	0	5	2	1	0	0
C-2979	M.Sc. Bio Chemistry	0	12	6	4	0	0
C-2980	M.Sc. Bio Chemistry	0	12	7	0	1	1
C-2981	M.Sc. Bio Chemistry	0	13	5	1	1	0
C-2982	M.Sc. Bio Chemistry	1	14	3	3	0	1
C-2983	M.Sc. Bio Chemistry	2	16	3	1	0	0
C-2985	M.Sc. Biotechnology	0	14	5	1	1	0
C-2986	M.Sc. Biotechnology	0	14	4	3	0	0
C-2987	M.Sc. Biotechnology	0	21	0	0	0	0
C-2988	M.Sc. Biotechnology	0	16	5	1	0	0
C-2990	M.Sc.GN. & PL. Breeding	2	15	0	3	0	0
C-2991	M.Sc.GN. & PL. Breeding	4	18	0	3	1	0
C-2992	M.Sc.GN. & PL. Breeding	0	17	2	3	1	2
C-2993	M.Sc.GN. & PL. Breeding	6	14	0	3	1	0
C-2996	M.Sc. Chemistry	0	9	8	5	7	0
C-2997	M.Sc. Chemistry	1	13	5	4	2	4
C-2998	M.Sc. Chemistry	0	13	3	5	0	1
C-2999	M.Sc. Computer science	0	18	0	0	0	0
C-3000	M.Sc. Computer science	0	8	5	2	1	1
C-3001	M.Sc. Computer science	0	12	1	2	0	1

C-3002	M.Sc. Computer science	0	12	0	4	0	0
C-3003	M.Sc. Computer science	1	11	1	4	0	0
C-3006	M.Sc. Comp.Biology	0	18	1	2	0	0
C-3007	M.Sc. Comp.Biology	0	27	1	3	1	0
C-3008	M.Sc. Comp.Biology	0	23	1	2	0	1
C-3009	M.Sc. Comp.Biology	2	10	2	3	0	3
C-3011	M.Sc. Demography	0	5	0	3	0	0
C-3012	M.Sc. Demography	0	5	1	1	0	0
C-3013	M.Sc. Demography	0	2	2	4	2	1
C-3014	M.Sc. Demography	0	7	0	1	0	0
C-3015	M.Sc. Demography	0	4	1	2	1	0
C-3016	M.Sc. Demography	0	6	1	0	0	0
C-3017	M.Sc. Demography	0	5	2	0	1	0
C-3018	M.Sc. Env.Sciences	0	16	4	0	1	2
C-3019	M.Sc. Env.Sciences	0	19	1	1	0	0
C-3020	M.Sc. Env.Sciences	0	18	1	3	1	0
C-3021	M.Sc. Env.Sciences	3	16	1	0	0	2
C-3022	M.Sc. Geology	0	2	0	0	0	0
C-3023	M.Sc. Geology	0	5	1	0	0	0
C-3024	M.Sc. Geology	0	3	0	0	0	1
C-3025	M.Sc. Geology	0	5	0	0	0	0
C-3026	M.Sc. Geology	0	5	0	0	0	0
C-3028	M.Sc. Integrative Biology	0	12	1	0	0	0
C-3029	M.Sc. Integrative Biology	0	13	0	0	0	0
C-3030	M.Sc. Integrative Biology	0	6	1	0	0	0
C-3031	M.Sc. Integrative Biology	0	12	1	0	0	0
C-3032	M.Sc. Mathematics	0	3	1	10	1	0
C-3033	M.Sc. Mathematics	0	1	2	8	2	0
C-3034	M.Sc. Mathematics	0	0	0	9	1	0
C-3035	M.Sc. Mathematics	0	4	2	9	1	3
C-3037	M.Sc. Physics	0	6	0	15	2	1
C-3038	M.Sc. Physics	0	12	0	8	0	1
C-3039	M.Sc. Physics	0	4	0	11	1	4
C-3040	M.Sc. Physics	0	7	3	2	3	3
C-3041	M.Sc. Applied Psychology	0	7	0	3	0	0
C-3042	M.Sc. Applied Psychology	0	5	1	4	0	0
C-3043	M.Sc. Applied Psychology	0	6	0	1	1	0
C-3044	M.Sc. Applied Psychology	0	6	0	0	0	0
C-3045	M.Sc. Applied Psychology	0	3	2	1	4	0
C-3046	M.Sc. Statistics	0	14	0	8	1	2
C-3047	M.Sc. Statistics	0	22	1	2	1	0
C-3048	M.Sc. Statistics	0	7	3	7	1	7
C-3049	M.Sc. Statistics	0	6	3	10	2	0
C-3050	M.Sc. Statistics	0	0	0	7	0	0

C-3052	M.Sc. Zoology	0	8	3	1	2	0
C-3053	M.Sc. Zoology	0	6	0	0	0	0
C-3054	M.Sc. Zoology	0	6	1	2	1	0
C-3055	M.Sc. Zoology	0	3	0	2	1	0
C-1817	M.Sc. Actuarial Science	0	2	1	8	0	0
C-1818	M.Sc. Actuarial Science	0	11	1	0	1	0
C-1819	M.Sc. Actuarial Science	0	6	0	3	0	0
C-1820	M.Sc. Aqu.Bio.& Fisheries	3	24	0	2	0	0
C-1821	M.Sc. Aqu.Bio.& Fisheries	1	26	0	1	1	0
C-1822	M.Sc. Aqu.Bio.& Fisheries	0	4	0	0	2	0
C-1823	M.Sc. Psychology	0	9	1	1	0	0
C-1824	M.Sc. Psychology	0	9	0	1	0	0
C-1825	M.Sc. Psychology	0	10	0	0	0	0
C-1826	M.Sc. Psychology	0	9	1	0	0	0
C-1827	M.Sc. Psychology	0	5	0	0	0	0
C-1829	M.Sc. Biochemistry	1	19	1	0	0	0
C-1830	M.Sc. Biochemistry	1	20	0	0	0	1
C-1831	M.Sc. Biotechnology	0	21	0	0	0	0
C-1832	M.Sc. Biotechnology	0	17	2	1	1	0
C-1833	M.Sc. Biotechnology	0	18	1	0	0	0
C-1834	M.Sc. GNandPL.Breeding	0	24	0	1	0	0
C-1835	M.Sc. GNandPL.Breeding	1	21	0	3	0	0
C-1836	M.Sc. GNandPL.Breeding	1	23	2	0	0	0
C-1837	M.Sc. Chemistry	0	20	1	3	2	1
C-1838	M.Sc. Chemistry	2	12	3	4	1	0
C-1839	M.Sc. Chemistry	2	16	2	1	3	0
C-1840	M.Sc. Chemistry	1	22	1	4	0	1
C-1841	M.Sc. Chemistry	1	23	1	2	0	1
C-1842	M.Sc. Chemistry	0	8	2	2	13	4
C-1843	M.Sc. Demography	0	6	0	1	0	0
C-1844	M.Sc. Demography	0	5	0	0	3	0
C-1845	M.Sc. Demography	0	5	0	0	2	0
C-1846	M.Sc. Environ.Sciences	1	18	0	2	0	0
C-1847	M.Sc. Environ.Sciences	2	16	0	0	3	0
C-1848	M.Sc. Environ.Sciences	0	20	0	1	0	0
C-1849	M.Sc. Geology	0	3	0	2	0	0
C-1850	M.Sc. Geology	0	3	0	1	0	0
C-1851	M.Sc. Geology	0	3	0	1	0	0
C-1852	M.Sc. Integr. Biology	0	12	0	0	0	0
C-1853	M.Sc. Integr.Biology	1	15	0	0	0	0
C-1854	M.Sc. Mathematics	0	2	0	11	2	0

C-1855	**M.Sc. Mathematics**	**0**	**1**	**0**	**13**	**0**	**0**
C-1856	**M.Sc. Mathematics**	**0**	**1**	**11**	**4**	**0**	**1**
C-1857	**M.Sc. Mathematics**	**0**	**2**	**1**	**14**	**0**	**0**
C-1858	**M.Sc. Physics**	**1**	**9**	**0**	**9**	**0**	**1**
C-1859	**M.Sc. Physics**	**0**	**10**	**1**	**6**	**0**	**2**
C-1860	**M.Sc. Statistics**	**0**	**10**	**7**	**3**	**0**	**3**
C-1861	**M.Sc. Statistics**	**0**	**20**	**3**	**2**	**0**	**0**
C-1862	**M.Sc. Statistics**	**0**	**14**	**2**	**4**	**1**	**4**
C-1863	**M.Sc. Statistics**	**0**	**17**	**2**	**4**	**0**	**2**
C-1864	**M.Sc. Statistics**	**0**	**0**	**0**	**8**	**1**	**0**
C-1865	**M.Sc. Zoology**	**0**	**4**	**1**	**0**	**1**	**0**
C-1866	**M.Sc. Zoology**	**0**	**6**	**0**	**0**	**0**	**0**

4. Table of Distribution of Question Paper Categories

based on Revised Bloom's Taxonomy of Educational Objectives

Stream: Social Science Stream (114 Question Papers)

Legend:

Re: Remembering	**Ap: Applying**	**Ev: Evaluating**
Un: Understanding	**An: Analysing**	**Cr: Creating**

Summary of distribution of questions in different categories:

Category>	Re	Un	Ap	An	Ev	Cr
Count>	128	809	167	294	139	7
Percentage>	8	52	11	19	9	0.45

Code	Sub	Re	Un	Ap	An	Ev	Cr
C-1868	M.Com	0	8	3	5	3	0
C-1869	M.Com	0	8	3	5	3	0
C-1870	M.Com	0	14	2	3	0	0
C-1871	M.Com	0	14	1	4	0	1
C-1872	M.C.J	0	6	2	0	2	0
C-1873	M.C.J	0	5	2	1	0	0
C-1874	M.C.J	0	3	3	1	3	0
C-1758	M.A. Archaeology	0	7	1	2	0	0
C-1759	M.A. Archaeology	0	9	1	0	0	0
C-1760	M.A. English	0	8	2	0	0	0
C-1806	M.A. Sociology	0	5	1	2	1	0
C-1807	M.A. Sociology	0	9	0	2	1	0
C-1808	M.A. Sociology	0	8	3	1	1	0
C-1809	M.A. Sociology	0	4	2	2	5	0
C-1797	M.A. Philosophy	0	4	7	5	1	0
C-1798	M.A. Philosophy	0	8	1	5	2	0
C-1799	M.A. Philosophy	0	10	2	5	2	0
C-1800	M.A. Political Sc.	0	3	3	1	2	0
C-1801	M.A. Political Sc.	0	6	1	3	1	0
C-1802	M.A. Political Sc.	0	4	1	3	1	0
C-1777	M.A. History	0	2	0	1	3	0
C-1778	M.A. History	0	1	0	3	2	0
C-1799	M.A. History	0	1	0	3	2	0
C-1780	M.A. History	0	1	0	2	3	0
C-1781	M.A. Is.History	10	2	4	5	2	0
C-1782	M.A. Is.History	10	2	1	1	1	0
C-1783	M.A. Is.History	10	2	1	1	2	0
C-1764	M.A. Economics	0	7	2	3	3	0

C-1765	M.A. Economics	1	10	6	4	1	0
C-1766	M.A. Economics	0	10	0	2	3	0
C-1767	M.A. Economics	0	4	3	4	1	0
C-1768	M.A. Economics	2	9	1	1	0	0
C-1875	M.S.W.	0	16	4	1	0	0
C-1876	M.S.W.	1	18	0	3	0	0
C-1877	M.S.W.	0	8	2	3	0	0
C-1878	M.S.W.	1	5	3	5	0	0
C-1879	M.S.W.	3	14	1	3	0	0
C-1880	M.S.W.	0	15	3	3	2	0
C-1881	MLISc	0	4	1	1	0	0
C-1882	MLISc	0	4	0	0	0	0
C-1883	MLISc	2	7	1	2	0	0
C-1884	MLISc	0	4	0	0	0	0
C-1900	MLISc	0	4	0	0	0	0
C-1886	M.Ed	3	5	3	4	4	0
C-1888	M.Ed	2	7	5	5	4	0
C-1889	M.Ed	3	9	4	3	1	0
C-1890	M.Ed	0	5	5	4	7	0
C-1891	M.Ed	2	8	2	4	4	
C-1892	M.Ed	3	9	5	1	4	2
C-1893	M.Ed	4	5	6	4	1	0
C-1894	M.Ed	5	8	6	1	1	1
C-1896	M.Ed	5	10	2	3	1	1
C-1898	M.Ed	3	9	5	1	1	1
C-1899	M.Ed	1	9	8	3	0	0
C-2961	M.A. Sociology	0	11	0	2	0	0
C-2962	M.A. Sociology	0	13	0	0	0	0
C-2963	M.A. Sociology	0	7	2	2	2	0
C-2964	M.A. Sociology	0	5	1	7	0	0
C-2965	M.A. Sociology	0	7	0	1	5	0
C-2949	M.A. Political Science	0	7	0	9	5	0
C-2951	M.A. Political Science	0	5	0	13	2	0
C-2952	M.A. Political Science	0	2	0	8	0	0
C-2943	M.A. Philosophy	0	8	0	7	1	0
C-2944	M.A. Philosophy	0	10	0	6	0	0
C-2945	M.A. Philosophy	0	5	3	7	1	0
C-2946	M.A. Philosophy	0	6	0	5	0	0
C-2918	M.A. History	0	5	2	1	1	0
C-2919	M.A. History	0	2	0	3	1	0
C-2920	M.A. History	0	5	0	1	0	0
C-2921	M.A. History	0	4	0	1	1	0
C-2922	M.A. Islamic History	10	9	0	3	1	0
C-2923	M.A. Islamic History	10	3	1	8	1	0

C-2924	M.A. Islamic History	10	8	1	2	2	0
C-2926	M.A. Islamic History	10	4	3	3	4	0
C-2903	M.A. Economics	0	11	2	0	0	0
C-2904	M.A. Economics	0	6	1	5	0	0
C-2905	M.A. Economics	0	10	0	2	1	0
C-2906	M.A. Economics	0	11	0	1	0	0
C-2892	M.A. Archeology	0	10	1	2	4	0
C-2893	M.A. Archeology	0	9	1	0	1	0
C-2894	M.A. Archeology	0	9	0	1	0	0
C-2895	M.A. Archeology	0	7	0	3	0	0
C-3056	M.Com	0	17	0	2	0	0
C-3057	M.Com	0	10	0	0	0	0
C-3058	M.Com	0	14	0	5	0	0
C-3059	M.Com	0	2	0	5	0	0
C-3060	M.Com	0	10	0	0	0	0
C-3062	M.C.J	0	4	1	1	1	0
C-3063	M.C.J	1	3	1	3	1	0
C-3064	M.C.J	0	5	2	1	0	0
C-3065	M.C.J	0	7	2	0	0	0
C-3066	M.C.J	0	7	0	0	0	1
C-3067	M.S.W	0	11	0	2	0	0
C-3068	M.S.W	0	9	0	3	1	0
C-3069	M.S.W	0	13	1	2	0	0
C-3070	M.S.W	0	12	1	0	0	0
C-3071	M.S.W	0	10	0	1	2	0
C-3072	L.L.M	0	4	0	4	0	0
C-3073	L.L.M	0	6	0	2	0	0
C-3074	L.L.M	0	5	0	3	0	0
C-3075	L.L.M	0	2	0	2	4	0
C-3076	L.L.M	0	7	0	0	1	0
C-3077	L.L.M	0	4	0	1	3	0
C-3078	M.L.I.Sc	0	6	0	0	0	0
C-3079	M.L.I.Sc	0	6	0	0	0	0
C-3080	M.L.I.Sc	0	6	0	0	0	0
C-3081	M.L.I.Sc	0	5	0	1	0	0
C-3082	M.L.I.Sc	0	5	0	1	0	0
C-3084	M.L.I.Sc	0	4	0	0	0	0
C-3085	MEd	4	12	3	1	0	0
C-3086	MEd	1	9	6	2	1	0
C-3087	MEd	5	6	3	3	6	0
C-3088	MEd	4	5	3	6	1	0
C-3089	MEd	2	7	1	6	4	0

5. Table of Distribution of Question Paper Categories

based on Revised Bloom's Taxonomy of Educational Objectives

Stream: Arts Stream (48 Question Papers)

Legend:

Re: Remembering	**Ap: Applying**	**Ev: Evaluating**
Un: Understanding	**An: Analysing**	**Cr: Creating**

Summary of distribution of questions in different categories:

Category>	Re	Un	Ap	An	Ev	Cr
Count>	52	171	67	45	71	12
Percentage>	12	41	16	11	17	3

Code	Sub	Re	Un	Ap	An	Ev	Cr
C-1812	M.A. Russian	0	0	0	0	1	0
C-1755	M.A. Arabic	0	0	18	0	0	0
C-1756	M.A. Arabic	1	1	0	1	0	1
C-1757	M.A. Arabic	1	0	0	1	0	1
C-1763	M.A. English	0		0	10	3	0
C-1762	M.A. English	0	2	0	0	8	0
C-1761	M.A. English	0	1	0	0	8	0
C-1803	M.A. Sanskrit	2	3	10	0	9	0
C-1804	M.A. Sanskrit	1	3	1	1	1	0
C-1805	M.A. Sanskrit	2	2	1	2	1	0
C-1784	M.A. linguistics	1	2	0	0	5	0
C-1785	M.A. linguistics	0	6	1	0	0	0
C-1786	M.A. linguistics	0	5	0	0	3	0
C-1788	M.A. Malayalam	10	3	0	0	10	0
C-1789	M.A. Malayalam	3	10	0	0	4	2
C-1790	M.A. Malayalam	3	6	0	0	10	0
C-1769	M.A. German	0	5	1	0	0	0
C-1770	M.A. German	0	1	1	1	2	0
C-1771	M.A. German	0	7	0	0	0	0
C-1772	M.A. German	0	4	0	0	2	0
C-1773	M.A. German	0	6	0	0	0	0
C-1774	M.A. Hindi	0	0	1	2	2	0
C-1775	M.A. Hindi	0	3	9	3	0	0
C-1776	M.A. Hindi	0	2	3	3	0	0
C-1795	M.A. Music	0	5	0	1	0	0
C-1796	M.A. Music	0	5	0	0	1	0
C-2956	M.A. Sanskrit	11	5	0	0	0	0

C-2957	**M.A. Sanskrit**	**1**	**8**	**0**	**0**	**0**	**0**
C-2959	**M.A. Sanskrit**	**1**	**4**	**0**	**0**	**0**	**0**
C-2927	**M.A. Linguistics**	**0**	**12**	**0**	**0**	**0**	**0**
C-2928	**M.A. Linguistics**	**0**	**7**	**2**	**0**	**0**	**0**
C-2929	**M.A. Linguistics**	**0**	**5**	**2**	**1**	**0**	**0**
C-2940	**M.A. Music**	**0**	**6**	**0**	**0**	**0**	**0**
C-2908	**M.A. German**	**0**	**2**	**0**	**0**	**0**	**0**
C-2909	**M.A. German**	**0**	**4**	**0**	**0**	**1**	**0**
C-2910	**M.A. German**	**0**	**5**	**0**	**0**	**0**	**0**
C-2911	**M.A. German**	**0**	**4**	**0**	**0**	**0**	**0**
C-2913	**M.A. Hindi**	**1**	**0**	**2**	**2**	**0**	**0**
C-2914	**M.A. Hindi**	**1**	**0**	**3**	**3**	**0**	**0**
C-2915	**M.A. Hindi**	**0**	**0**	**4**	**1**	**0**	**1**
C-2916	**M.A. Hindi**	**1**	**0**	**5**	**4**	**0**	**0**
C-2887	**M.A. Arabic**	**0**	**2**	**1**	**0**	**0**	**0**
C-2888	**M.A. Arabic**	**1**	**1**	**0**	**0**	**0**	**1**
C-2889	**M.A. Arabic**	**1**	**1**	**0**	**3**	**0**	**1**
C-2890	**M.A. Arabic**	**10**	**5**	**0**	**0**	**0**	**4**
C-2891	**M.A. Arabic**	**0**	**3**	**2**	**0**	**0**	**1**
C-2941	**M.A. Music**	**0**	**5**	**0**	**1**	**0**	**0**
C-2942	**M.A. Philosophy**	**0**	**10**	**0**	**5**	**0**	**0**

6. Model Questions in different levels of Bloom's Taxonomy
Prepared by Teachers of University of Kerala

6a. Computer Science

Remembering

1. **List 3 different free software**
2. **Give typical specifications of a standard home PC.**

Understand

3. **Compare sequential and random access memories**
4. **How does a cache memory help in enhancing system performance**

Apply

5. **Write a C program to sort a given set of numbers**
6. **Give the order of traversal of nodes of the given tree in breadth-first-search**

Analysis

7. **Consider the piece of code given below. Predict the output of the programme.**
8. **Consider the logic circuit given below. Predict its output if the inputs are (0,1,1,0,1)**

Evaluate

9. **Given below system specification of two High Performance Clusters, which one is suited for a scientific institution? Why?**

Create

10. **Design a data base for storing student data of a University whose details are given below. Data base should be in normalized format.**
11. **Digital computers internally use binary system represented by two voltage levels. Discuss issues to be addressed if 3-level logic is used by computers. What will be advantages and disadvantages of such a system?**

6. Model Questions in different levels of Bloom's Taxonomy
Prepared by Teachers of University of Kerala

6b. Molecular Biology

Remember

1. **List the different components of a prokaryotic RNA Polymerase holoenzyme.**
2. **Describe the organization of a eukaryotic ribosome.**

Understand

3. **Compare the transcriptional efficiency per unit enzyme in prokaryotes and eukaryotes.**
4. **Explain the process of strand separation by DNA helicase?**

Apply

5. **Determine the causes and consequences of errors in proof reading of DNA polymerase**
6. **Estimate the energetics of peptide synthesis at the ribosomal level.**

Analyse

7. **Differentiate between triple codon charts of prokaryotes and eukaryotes**
8. **Organise in a flow chart model, the various limiting factors in each step of mRNA translation in a bacterial cell.**

Evaluate

9. **Polycistronic mRNA is a simple but advanced method of managing genetic information retrieval in prokaryotes. Justify.**
10. **Critically comment on the benefit vs consequence of running an SOS repair system**

Create

11. **Design a suitable experiment to understand the presence of mutation in a particular gene of interest.**
12. **DNA has evolved as a superior genetic material universally. Can you generate an alternative hypothesis to argue otherwise?**

6. Model Questions in different levels of Bloom's Taxonomy
Prepared by Teachers of University of Kerala

6c. Commerce

Knowledge

1. **What is marketing?**
2. **Describe the 4 Ps in marketing mix.**
3. **State the principles of marketing**

Comprehension/ Understanding

4. **Explain the relevance of green marketing in the globalised era.**
5. **Discuss the benefits of packaging.**
6. **Differentiate product mix and product line with suitable examples.**

Application

7. **What pricing strategy would you apply for your product at the maturity stage of its life cycle?**
8. **How will you use social media for the promotion of tourism in Kerala?**
9. **What ways can you apply marketing mix to develop a marketing plan for industrial products?**

Analysis

10. **Suppose, you are a manufacturer of Colour Televisions and your product is now at the growth stage of its life cycle. Identify the best pricing strategy that you would suggest for your product? Then why?**
11. **Identify the present position of NOKIA Mobile phones in the product life cycle.**
12. **'Grading starts where standardisation ends'. Explain the statement**

Synthesis

13. **Construct the product mix of SAMSUNG considering the dimensions width, length, depth and consistency.**
14. **Design an advertisement copy for a hypothetical product that you want to introduce in the market soon.**
15. **A leading mobile service operator is loosing its market share. Its customers are migrating to other operators. Design a strategic plan to retain its users.**

Evaluation

16. **Do you agree that 'advertising does not make any effect on the price of the product '? Justify your answer.**
17. **Evaluate the impact of social media on online marketing**
18. **Discuss the impact of Demonetisation on the buying behaviour of the potential customers of consumer products.**

6. Model Questions in different levels of Bloom's Taxonomy

Prepared by Teachers of University of Kerala

6d. Public Administration

Knowledge Level/ Remembering Level

1. **What you mean by narrow approach in Public Administration**
2. **Can you relate Public Administration with Private Administration**
3. **Write a short note on Ethics in Administration.**
4. **What you mean by E-Governance**
5. **What are the objectives of Human Resource Planning.**

Understanding Level

1. **Discuss the term Judicial Activism**
2. **Describe the problems of autonomy of states in India.**
3. **Define Human Rights and explain its emerging significance.**
4. **Summaries different world conferences in Public Administration**
5. **Distinguish between decision making under risk and decision making under conflict.**

Applying Level

1. **Briefly sketch on Centre –State relation in India.**
2. **Which are the effective pollution control measures you can apply in your home town.**
3. **Prepare different types of conflict resolution mechanisms with the help of Follet's theory.**
4. **Illustrate the role of Board of Directors in corporate sector.**
5. **Differentiate between capital investment and capital management with examples.**

Analysing Level

1. **Analyse the role of advertisement in promoting a newly launched food product.**
2. **Examine the feature of Weberian bureaucracy and its significance in present day administration.**
3. **Distinguish the features of comparative public administration and traditional public administration with relevant examples.**
4. **Identify the role of district collector in effective district administration.**
5. **Critically analyse the functions of National Development Council.**

Evaluating Level

1. **Evaluate the role of NGO's in public policy analysis.**
2. **Corruption is under control after the implementation of Right to Information Act. State your arguments.**
3. **Apart from Cast reservation we need social and economic equality. Judge this statement.**
4. **Argue the need for a global perspective in the national policy making.**
5. **Interpret Simon's bounded rationality model .**

Creating Level

1. **Construct a model for urban development program for Kerala.**
2. **Construct an effective mechanism to protect the status of downtrodden women and children in India.**
3. **Design a consumer product and make a break even analysis for five years.**
4. **Construct a program to improve the morality of your 100 member organization.**
5. **Develop a plan of welfare programmes for KSEB lower and middle level workers.**

6. Model Questions in different levels of Bloom's Taxonomy

Prepared by Teachers of University of Kerala

6e. Statistics-Probability theory

Remembering

1. **Define independence of (i) k events (k ≥ 1) and (ii) a sequence of events.**
2. **State inversion theorem of characteristic functions.**

Understanding

3. **Explain Bayes' theorem for finite number of events.**
4. **When do you say that a sequence of random variables converge (i) in distribution and (ii) in quadratic mean. Give suitable examples in each case.**

Applying

5. **Show that sample mean always converges to population mean in probability when population mean exists.**
6. **Let $\{X_n\}$ be a sequence of independent random variables such that $P(X_n = n^{\alpha}) = P(X_n = -n^{\alpha}) = 0.5$. Examine whether the sequence $\{X_n\}$ obeys CLT or not?**

Analysing

7. **Distinguish between pair-wise and mutual independence of events, with .**
8. **If X is a random variable with probability mass function**

$$P[X = \frac{(-1)^{j+1}3^j}{j!}] = \frac{2}{3^j}, \qquad j = 1,2,\ldots$$

Discuss the existence or non-existence of the moments of X.

Evaluating

9. **Derive the characteristic function of a random variable with density $f(x) = \frac{1}{2}e^{-|x|}$, x real**
10. **If D, E, F are independent events, show that D, E^c (complement of E) and F^c are independent.**

Creating

11. **Prove that convergence in probability implies convergence in distribution. Is converse true? Justify.**
12. **If $\{A_n, n \geq 1\}$ is a sequence of independent events with $\sum_{n=1}^{\infty} P(A_n) = \infty$, then prove that $P(\text{limsup } A_n) = 0$. What will happen if $\sum_{n=1}^{\infty} P(A_n) < \infty$?**

6. Some Model Questions in different levels of Bloom's Taxonomy
Prepared by Teachers of University of Kerala

6f. Linguistics

Remembering

1. **List the linguistic levels at which language(s) can be studied.**
2. **Label the language centres of the brain their primary functions in language processing**
3. **Write phonetic symbols for the vowels in the following words:**
   Broad, they, cow, pea, verse

Understanding

4. **Explain the concept of Communicative Competence by Dell Hymes and Hebermas**
5. **Describe the role of the brain in language acquisition and language Processing**
6. **What is Language Planning? Discuss the types of Planning**

Applying

7. **Find out various maxims of communication and illustrate with examples from your native language.**
8. **Illustrate Chomsky's definition of performance in contrast to competence with two examples from your language.**
9. **Prepare a vowel chart for the vowels in your language**

Analysing

10. **Examine the nature of logic in semantics and distinguish between simple propositions and complex propositions with example.**
11. **Distinguish between allophones in complementary distribution and allophones in free variation.**
12. **Examine the Ad "Fight Cancer" and write the semiotic Analysis of it**

Evaluating

13. **Assess the major differences between linguistic determinism, linguistic relativity, and the Sapir-Whorf hypothesis.**
14. **Evaluate the basic features of your language that are common to other languages in the world. Support your answers with examples**
15. **Compare and contrast the focus of linguistics in Europe with that of India**

Creating.

16. **Construct a matrix for the use of English and the local language(s) in your community. Which one is the high or low language?**
17. **Develop a plan to revitalize the endangered languages of your locality**
18. **Categorize the world languages in to various structural types on the basis of their typological features**

7. Sample QPs used for analysis

(Page : 1) **C – 2928**

Reg. No. : .....

Name : .....

Second Semester M.A. Linguistics (CSS) Degree Examination, June 2017
LIN 522 : SYNTACTIC THEORIES

Time : 3 Hours Max. Marks : 60

Instructions : *1) Answer **five** questions.*
*2) **All** questions carry **equal** marks.*

1. Explain phrase structure grammar.
2. Explain the boundary between syntax and morphology with examples.
3. Limitations of IC analysis. Explain with examples.
4. Write an essay on Modern Trends in TG.
5. Explain relativisation with suitable examples from Malayalam.
6. Write an essay on universal grammar.
7. Illustrate with suitable example the movement and deletion transformation.
8. Write notes on **any four** of the following :
   a) Components of grammar
   b) Limitation of PS.grammar
   c) Semantics in syntactic theory
   d) Deep structure
   e) 1965 model of TG
   f) T-rules

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C – 2941

Reg. No. : .....

Name : .....

Second Semester M.A. (CSS) Degree Examination, June 2017
MUSIC
MUC 522 : Music of Kerala

Time: 3 Hours Max. Marks : 60

Instruction : *Answer **any four** questions from the following. **All** the questions carry **equal** marks.*

I. Explain the group krithis of Maharaja Swathi Thirunal.

II. Write an essay on the Ritualistic music of Kerala.

III. Write the Lakshana of any two of the following ragas with Sancharas :

a) Dhanyasi

b) Saurashtram

c) Sindhubhairavi

d) Poorvikalyani.

IV. Compare the concepts of Raga, Tala, Gamaka and Musical forms in Kadhakali music with Carnatic music.

V. What are the characteristic features of Sopana Sangeetham ?

VI. Write short notes on **any two** of the following :

a) Ragamalikas of Maharaja Swathi Thirunal.

b) Talas of Kadhakali Music.

c) Padmanabhasatakam.

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C – 2942

Reg. No. : .....

Name : .....

Second Semester M.A. (CSS) Degree Examination, June 2017
Branch : PHILOSOPHY
PHI 521 : Philosophy of Sankara

Time : 3 Hours Max. Marks : 60

PART – A

Answer **any two** of the following questions.

1. Discuss Advaita theory of Maya and bring out its relationship with Brahman.
2. Examine the doctrines of Ajatevada and Asparsayoga in Gaudapada's philosophy.
3. Discuss the important aspects of Vallabha's Suddha Advaita.
4. Explain briefly the epistemology of Advaita Vedanta. **(2×10=20 Marks)**

PART – B

Answer **any eight** of the following questions.

5. Discuss the four fold discipline of Advaita.
6. Examine the concept of Panchabheda in Madhva's philosophy.
7. Distinguish between jivanmukti and videhamukti.
8. Write a short note on Dvaitadvaita.
9. Give a brief account of Prastanatraya.
10. Examine the theory of error in Sankara's Advaita Vedanta.
11. Discuss Sankara's views on Sattatraya.
12. Analyse the concept of Saguna Brahman in Advaita.
13. Give a brief account of the five devotional ways according to Ramanuja.
14. Examine the important criticisms against Sankara's concept of Maya by Ramanuja.
15. Briefly explain the importance of Sruthi according to Sankara.
16. Write a short note on Mandukya Karika of Gaudapada. **(8×5=40 Marks)**

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(Pages : 2) **C – 1788**

Reg. No. : .....

Name : .....

Fourth Semester M.A. (CSS) Degree Examination, April 2017
Branch : Malayalam Language and Literature
MAL-541: മലയാള സാഹിത്യം ആധുനികാനന്തരം

Time : 3 Hours Max. Marks : 60

I. **ഒറ്റ** വാക്കിൽ ഉത്തരമെഴുതുക.

1) 'അന്ധകാരനഴി' – എന്ന നോവലിന്റെ രചയിതാവാര് ?

2) സൂക്ഷ്മാഖ്യാനം എന്ന സങ്കല്പത്തിന്റെ ഉപജ്ഞാതാവ് ?

3) 'ആധുനികോത്തരതയുടെ കേരളീയ പരിസരം' എന്ന കൃതിയുടെ രചയിതാവ് ?

4) മലയാളത്തിലെ ഒരു ആധുനികകാല നോവലിന്റെ പേര് ?

5) സജിതമഠത്തിലിന്റെ നാടകചരിത്രകൃതിയുടെ പേരെന്ത് ?

6) 'ലീല' എന്ന ചെറുകഥയുടെ കർത്താവാര് ?

7) പാസ്റ്റിഷ് എന്ന സാങ്കേതിക സംജ്ഞയുടെ അർത്ഥം ?

8) ഉത്തരാധുനിക സ്വഭാവമുള്ള ഒരു കവിതയുടെ പേരെഴുതുക.

9) സൈബർകവിതകളെ നാലാമിടം എന്നു വിശേഷിപ്പിച്ച കവി ആര് ?

10) ബ്ലാക്കൗട്ട് എന്ന നാടകത്തിന്റെ കർത്താവാര് ? **(10×½=5 Marks)**

II. **ഒന്നോ രണ്ടോ** വാക്യത്തിൽ ഉത്തരമെഴുതുക.

11) ബഹുസ്വരത.

12) സദാത്മകലോകം.

13) ഏകാന്തര യാഥാർത്ഥ്യങ്ങൾ.

14) അതികഥ.

15) പാരഡി. **(5×1=5 Marks)**

III. **ഒരു പുറ**ത്തിൽ കവിയാതെ **അഞ്ചു** ചോദ്യങ്ങൾക്ക് ഉത്തരമെഴുതുക.

16) മലയാള സാഹിത്യത്തിലെ ഉത്തരാധുനികാവസ്ഥയുടെ സ്വഭാവങ്ങൾ വിശദീകരിക്കുക.

17) 'എ. എഴുത്തുകാരനായതെങ്ങനെ ?' എന്ന കഥയുടെ ആഖ്യാനസവിശേഷത എന്താണ് ?

18) സ്ത്രീപക്ഷനാടകങ്ങൾ നേരിടുന്ന വെല്ലുവിളി എന്താണ് ?

19) 'ശ്രീരാവണൻ' എന്ന തലക്കെട്ടിന്റെ പ്രസക്തി വിവരിക്കുക.

20) 'കൃതി, പാഠം എന്നാൽ എന്താണ് ?

21) വിപണിലോകത്തിന്റെ വികാരരാഹിത്യത്തെ വൃദ്ധസദനം അനുഭവപ്പെടുത്തുന്നതെങ്ങനെ ?

22) അപനിർമ്മാണം – കുറിപ്പെഴുതുക. **(5×4=20 Marks)**

IV. **നാലു പുറ**ത്തിൽ കവിയാതെ ഉത്തരമെഴുതുക.

23) മലയാളത്തിലെ ഉത്തരാധുനിക നോവലുകൾ സൃഷ്ടിച്ച ഭാവുകത്വപരിണാമം ചർച്ച ചെയ്യുക.

അല്ലെങ്കിൽ

ഉത്തരാധുനികതയെ സംബന്ധിച്ച വ്യത്യസ്ത നിരൂപകാഭിപ്രായങ്ങൾ ക്രോഡീകരിക്കുക.

24) ഉത്തരാധുനിക കഥകൾ ആധുനികകഥകളിൽ നിന്ന് വ്യത്യസ്തമാകുന്നതെങ്ങനെയെന്ന് ഉദാഹരണസഹിതം വിശദീകരിക്കുക.

അല്ലെങ്കിൽ

ഉത്തരാധുനിക കഥയുടെ ഭാഷാപരമായ സവിശേഷതകൾ വിവരിക്കുക.

25) മലയാളനാടകത്തിന്റെ നവീനമുഖം – പാഠവും വേദിയും – ബ്ലാക്കൗട്ട് എന്ന നാടകത്തെ മുൻനിർത്തി ചർച്ച ചെയ്യുക.

അല്ലെങ്കിൽ

ഉത്തരാധുനിക കവിതയിൽ സൂക്ഷ്മരാഷ്ട്രീയത്തിന്റെ വ്യത്യസ്തതലങ്ങൾ ഏപ്രകാരമാണ് കാണുന്നത് ? പാഠ്യഭാഗത്തെ മുൻനിർത്തി വിശദീകരിക്കുക. **(3×10=30 Marks)**

8. A Brief Note on Bloom's Taxonomy

The goal of questioning is not to test what the students have learned, but rather to find their cognitive level of learning. Most of the questions we ask tends more towards assessing typically factual knowledge, which rely mostly on short term memory, neglecting the metacognitive dimensions. We should examine our course objectives and assessment items, and see what we are trying to promote among students: are we engaging students in lower level or higher order thinking? Too often class room learning experiences and evaluations focus mainly on lower levels in Bloom's Taxonomy, but for students to be competent in their future profession and to deal with the complexities in real life situations, the higher levels of thinking are what we as educators should be aiming for. While preparing the questions for evaluation, we must take a critical look at our objectives, learning outcomes and test items, and see whether we are addressing all the levels of thinking as suggested in the Taxonomy of Educational Objectives. This report is an attempt to reveal the significance of Bloom's taxonomy in the teaching learning process as well as evaluation, to the novice learners in the area.

The aim of education is the all-round development of a child, which may take years as well as experiences to get fulfilled. It is a long process which could be attained only through various educational objectives. In a classroom, educators should frame instructional objectives which are immediate or short term goals that may draw the students towards their distant aim. The major objective of the educator or a curriculum planner is to bring behavioural changes in the learner. An instructional objective explains the difference between the entry behaviour and terminal behaviour of a student. An entry behaviour is the extent of knowledge about the content a student possess before the instruction is given and can be termed as previous knowledge. Terminal behaviour is the behaviour which is expected from the student after the instruction is given. So the difference between these two behaviours is the expected outcome or in other words, we can say, it expresses the behavioural change of the individual. If there is behavioural change, it ensures learning.

An instructional process is characterised by three components. They are instructional objective, learning experience and evaluation. The instructional objectives constitutes the pivot of any evaluation process. The learning experience provided or attained during the instructional process is based on the objectives framed for the process. Learning experiences are pupil activities and teacher activities planned with the specific purpose of producing the desired behavioural changes in the learner. Also the evaluation process should also be done based on the objectives framed. Evaluation based on objectives help a teacher to clarify the ideas about the objectives, so that she can select the most appropriate objective to be attained rather than going for the suitable method. In short there exist a triangular relationship between objectives, learning

experience and evaluation. For an evaluation process to get completed, it involves the formulation of objectives of teaching based on the desired behavioural output from the student, determining and providing the learning experience appropriate to the framed objectives and preparing tools of evaluation to assess or measure the extent to which the framed objectives are attained.

Dr.Benjamin S. Bloom, the then Associate Director of Board of Examinations, University of Chicago introduced the taxonomy of Instructional Objectives in 1956, as a means to facilitate the exchange of test items for evaluation among faculty at various universities, in order to create bank of items each measuring the same educational objective. He tried to make a hierarchical classification of objectives to help educators plan and evaluate the learning experience. According to Bloom's Taxonomy of Educational Objectives, the instructional objectives fall into three main categories or domains. They are Cognitive, Affective and Psychomotor domains. The cognitive domain or the knowing field refers to the intellectual development whereas the affective domain or the feeling field deals with emotional development. The psychomotor domain also called as doing field deals with development of manipulative or motor skills. These three domains of learning do not occur in isolation but rather work together to make up one whole being. This integrated behaviour of the three domains can be well illustrated with the titration experiment in Physical Science. The knowledge of level to which one must pipette or the colour of the indicator is well dealt by cognitive domain. Psychomotor domain deals with muscle coordination with respect to operation of pipette and burette. The result of the experiment which creates an interest or attitude towards the experiment or the process done will come under the feeling field or the affective domain. Similar examples can be found in every discipline where we can find the total blending of three domains for the learning to occur.

Benjamin S.Bloom did little research on psychomotor domain. Though affective domain was also classified, he put more effort in the classification of objectives under cognitive domain, which deals with thinking, knowing and problem solving. According to Bloom, cognitive domain includes those objectives which deals with the recall and recognition of knowledge and the development of intellectual abilities and skills. As per his classification, the cognitive domain contains six major classes of objectives arranged in a hierarchical order on the basis of complexity of tasks. It is arranged from simple to complex and concrete to abstract manner. They are knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. Knowledge level includes those behaviour which refers to remembering either by recognition or recalling of ideas, materials or phenomena. In this level the student is expected to recall the pieces of information he stored in his memory. It includes questions like

1. **What is the value of π?**
2. **Who wrote origin of species?**

3. **When was the battle of Panipat?**

Words often used in knowledge questions include know, who, define, what, name, where, list, and when.

The second level, Comprehension include an understanding of the material being communicated. Itrefers to the understanding of facts and ideas by organising, defining, interpreting, explaining the main idea. Here the student will be able to define statements in his own words. The question include

1. **Define law of inertia.**
2. **What is surface tension?**

Words often used in comprehension questions include describe, use your own words, outline, explain, discuss, and compare

The Application level shows the ability of a student to use learnt information in new situations. It reveals the problem solving ability of the student .The level can be illustrated with the following questions

1. **Demonstrate how changing the location of the fulcrum affects a table top lever.**
2. **Why do water drops have spherical shape?**

Words often used in application questions include apply, manipulate, put to use, employ, dramatize, demonstrate, interpret, and choose.

Analysis level is the ability to identify the component knowledge, to analyse between facts and inferences. Here the student tries to analyse and break it into parts by identifying motives and causes. He will try to make inferences and find evidences to form generalizations. The questions of this category include

1. **Identify the different parts of a plant.**
2. **Distinguish between different types of levers with an example.**

Words often used in analysis questions include analyse, why, take apart, diagram, draw conclusions, simplify, distinguish, and survey.

The second last level, synthesis which is the antonym of analysis, as the name suggest makes the learner combine related ideas and integrate new knowledge. They combine information to propose alternative solutions. The questions of this level are

1. **Design a poster to campaign for energy conservation.**
2. **Compose a poem with theme, "Modern Periodic Table".**

Words often used in synthesis questions include compose, construct, design, revise, create, formulate, produce, and plan

Finally, evaluation level refers to the ability of the learner to make judgement or prediction. He will be able to present and defend opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria. When students are engaged in decision-making and problem-solving, they should be thinking at this level. Evaluation questions do not have single right answers. Some examples of evaluation questions include:

1. **Why do you think Gandhi is known as the 'Father of our nation'?**
2. **Do we need politics in campus? Justify your views.**

Words often used in evaluation questions include judge, rate, assess, evaluate, what is the best …, value, criticize, and compare.

The above taxonomy was published in 1956 under the title, *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain* (Bloom, Engelhart, Furst, Hill, &Krathwohl, 1956).This was referred to as the original Taxonomy. The revision of this framework was done 45 years later by Lorin Anderson, a former student of Bloom, and David Krathwohl in 2001 and renamed as *The Revised Taxonomy*. A rearrangement was done in the hierarchical arrangement with the noun form of the words substituted by gerund form. Also Synthesis changed places with Evaluation and was renamed Create. Hence the new levels of cognitive domain are remembering, understanding, applying, analysing, evaluating and creating. Here also the six major categories of the Cognitive Process dimension are believed to differ in their complexity, with remember being less complex than understand, which is less complex than apply, and so on.

In the taxonomy, the first three bottom levels of cognitive domain are considered as lower order thinking levels and hence the questions under these levels are considered to be lower order questions or reproductive questions. The remaining three levels such as analysing, evaluating and creating level are called higher order thinking levels. The questions under these categories are productive in nature and hence higher order questions. Hence climbing up the Bloom's pyramid requires planning beyond rote learning. Spending as much time as possible at the highest levels of Bloom's Taxonomy will take learning to a whole new realm of relevancy. We should try to integrate the key concepts of each subject with a large amount of analysis, evaluation, and creativity. At the same time evaluation should also be done with respect to these higher order thinking levels. This may be a greater challenge for the teacher, but needs be accomplished to develop our students into a successful citizen of the 21st century.

9. References:

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