NATIONAL INSTITUTE OF TECHNOLOGY, DELHI

END-SEMESTER EXAMINATION

B. Tech (3rd Year): Semester-1 (2023) | Course Code: HML351

Course Name: Engineering Economics and Accountancy | Date:15.12.2023(Friday)

Time: 3 hours | Max. Marks: 50

Q1.(a)Calculate the national income and NNP at market prices for the following data:

Items	Amount (in □ crores)
i. Mixed income of self-employed	2500
ii. Net factor income from abroad	(-) 50
iii. Rent	500
iv. Private Income	4000
v. Consumption of Fixed Capital	400
vi. Corporation Tax	700
vii. Profits	300
viii. Net Retained Earnings of Private Enterprises	500
ix. Compensation of Employees	1600
x. Net Indirect Taxes	500
xi. Net Current Transfers from Abroad	150
xii. Net Exports	(-) 40
xiii. Interest	500
xiv. Direct Taxes paid by households	300

(b) Mention any four limitations of using GDP as a measure/index of the welfare of a country.

(5+2)

Q2. Write short notes on any two of the following concepts:

(a)Profit and Loss Account

(b) Journal & Ledger

(c)Concept of depreciation and economic life of an asset **(4+4)**

Q3. Discuss the various categories of cost classification on the basis of functions performed in an organization. What do you think is the difference between an income statement and a balance sheet? **(6+1)**

OR

Why does a demand curve slope downwards? Explain the concept of elasticity of demand and elasticity of supply with respect to the change in the price level? **(3+4)**

Q4.(a)The purchase price of a machine is $7500. The equipment has an estimated salvage value of $3000 at the end of its expected useful life of 5 years. Using the sum of year digits methods of depreciation, calculate the book value of the asset after three years and calculate the depreciation charge of the asset after two years.

(b) Mention any one of the key differences between the 'sum of year' method of depreciation and the 'sinking fund' method.

(c) Also, mention any one advantage/merits of the sinking fund method.

(5+1+1)

Q5. (a)Your friend is buying a $12375 car with a $3000 down payment to be paid over the next three years. Your friend has two options:

Option 1: Pay monthly payments of $325 each for the next three years

Option 2: Pay quarterly payments of $ 975 each of the next three years

What is the effective rate of interest for both options?

(b) A project has a first cost of $14,000, uniform annual benefits of $2,400, and a salvage value of$3,000 at the end of its 10-year useful life. What is its net present worth at an interest rate of12%?

(c) An engineer is considering buying a life insurance policy for his family. He currently owes$77,500, and would like his family to have an annual available income of $35,000 indefinitely(that is, the annual interest should amount to $35,000 so that the original capital does notdecrease). If he assumes that any money from the insurance policy can be invested in an account payinga guaranteed 4% annual interest, how much life insurance should he buy?

(2+2.5+2.5)

Q6.(a) Explain the Keynesian concept of demand-pull inflation and the money theory concept of supply shock inflation?

(b) What do you think will be the impact of the Ukraine War on the situation of Inflation in the country?

(c) Suggest two fiscal measures to the government to cure the inflation problem in the country?

(4+1+2)

Q7. (a)Explain the need for economic reforms in India in 1991. Kindly elaborate on the reasons in detail.

(b) What were the measures taken under the economic reforms to promote privatization? Explain. **(3+4)**

PRESENT VALUE TABLE

r = interest rate; *n* = number of periods until payment or receipt. (*n*)	Interest rates (*r*)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

r = interest rate; *n* = number of periods until payment or receipt. (*n*)	Interest rates (*r*)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.079	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

CUMULATIVE DISCOUNT FACTOR (CDF) TABLE