ZCAS University

SMS3751 PROJECT MANAGEMENT

END OF SEMESTER FINAL EXAMINATION

DATE: MONDAY 4 JUNE 2024

TIME: 0830 TO 11:30

TIME ALLOWED: THREE HOURS (plus 5 minutes to read through the paper)

INSTRUCTIONS:

1. Section A: Question One in Section A is **compulsory**.

2. Sections B: **Answer Three (3) questions** from this section.

3. This examination paper carries a total of **100 marks**.

4. Candidates must **not turn this page** until the invigilator tells them to do so.

QUESTION 1

Read the case below and then answer the questions.

You have just acquired a job as a Project Manager on a Water Utility Companies' Data Base Clean UP project under the Water Resources Management Authority (WRMA) that is being jointly financed by the Zambian and American Governments. This is a National Wide Project that is expected to last for one year, starting June 2024 to July 2025. It is hoped that once this project is successfully implemented, it will contribute towards the revamping of the Water Utility Companies across Zambia and this would consequently lead to quality delivery of water and sanitation services by these Companies. Improvement in the service delivery of the Water Utility Companies is one significant milestone in so far as reducing the infection rates of COVID Pandemic is concerned. Therefore, this project is being regarded as being very critical and relevant to the current prevailing COVID 19 situation, which has affected not only Zambia but the entire World.

One of your preliminary assignments on this Project as the Project Manager is to facilitate the development of a Project Charter document which is an important input into the development of the Project Management plan which is consolidated document, containing important elements such as the Cost Baseline, Schedule Baseline and the Scope Baseline as well as other subsidiary Plans.

REQUIRED

a. Discuss any three (3) parameters that can influence the success of this project **(15 Marks)**

b. Critically examine any one (1) Project Management tool that could be applied on this project in order to bring it to a successful completion **(10 Marks)**

c. Identify and explain any 3 important elements that must be included in the Project Charter

(15 Marks)

[Total: 40 Marks]

SECTION B: ATTEMPT ANY THREE (3) QUESTIONS FROM THIS SECTION

QUESTION 2

You are the Project Manager for Sage Tech Engineering and Construction Company that has been awarded a tender by Zambia Revenue Authority (ZRA) to construct new customs office at Kasumbalesa Boarder Post. The following table summarises activities on this project.

CONSTRUCTION OF THE NEW ZRA CUSTOMS OFFICE AT KASUMBALESA BOADER.

Activity	Activity Description	Immediate Predecessors	Estimated Duration (In weeks)
A	Excavate	None	2
B	Lay the foundation	A	4
C	Put up the rough wall	B	10
D	Put up the roof	C	6
E	Install the exterior plumbing	C	4
F	Install the interior plumbing	E	5
G	Put up the exterior siding	D	7
H	Do the exterior painting	E. G	9
I	Do the electrical work	C	7
J	Put up the wall board	F. I	8
K	Install the flooring	J	4
L	Do the interior painting	J	5
M	Install the exterior fixtures	H	2
N	Install the interior fixtures	K.L	6

Required

Based on the above information in the table:-

a. Construct the activity on node (AoN) project network diagram **(5 Marks)**

b. Apply the two pass method to compute the critical path within this network diagram

(10 Marks)

c. Briefly discuss the activity duration estimation approach that has been applied on this project **(5 Marks)**

[Total 20 Marks]

QUESTION 3

'An Organizational Structure is an Enterprise Environmental Factor that affects availability of resources and can influence the way a project is managed within an organization'.

REQUIRED

With the help of diagrams where necessary contrast a Projectized Organization and a Weak Matrix Organization **(20 Marks)**

[Total: 20 Marks]

QUESTION 4

Mob Kings Zambia at 10% cost of capital is considering three mutually exclusive projects A (Developing a New Detergent Paste), B (Constructing an Office Space in the New Economic Zone instead of renting the facility) and C (Improving on the packaging for baking Flour). The details of the investment and Cash inflow in Zambian Kwacha are:

	Project A	Project B	Project C
Investment	200,000	200,000	200,000
Cash Inflow Year 1	100,000	90,000	120,000
Year 2	160,000	100,000	70,000
Year 3	50,000	70,000	20,000
Year 4	45,000	30,000	50,000
Year 5	70,000	60,000	80,000

Carry out an appraisal by calculating the following through the three proposed project;

REQUIRED

a. Payback period

    (5 Marks)

b. Net Present Value (NPV)

    (5 Marks)

c. Profitability Index (PI)

    (5 Marks)

d. In line with the NPV project appraisal technique indicate the project that would be selected and provide justification

    (5 Marks)

    [Total: 20 Marks]

QUESTION 5

Briefly discuss the following concepts:

a. Weak Matrix Organization

(5 Marks)

b. Activity Sequencing

(5 Marks)

c. Project Scheduling

(5 Marks)

d. Scope Creep

(5 Marks)

[Total: 20 Marks)

END OF EXAMINATION

PRESENT VALUE TABLE

Present value of $1, that is $(1+r)^{-n}$ where r = interest rate; n = number of periods until payment or receipt.

Periods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
					Interest rates (r)					
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

Periods (n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
					Interest rates (r)					
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