National University of Computer and Emerging Sciences, Lahore Campu

Course Name:	Fundamentals of Software Project Management	Course Code:	CS-4044
Degree Program:	BS(SE)	Semester:	Fall 2023
Exam Duration:	60 Minutes	Total Marks:	35
Paper Date:	28 – Sep – 2023	Weight:	15
Section:	ALL	Page(s):	7
Exam Type:	Midterm-I		

Student Nam Roll No.

Instruction/ MCQs please encircle the correct option. Use a pen and do no overwrite or cut. No marks will be given in case you ch more than one option.

Chose the right option for the following

Question 1 [CLO-1] 8/10 points

1. A project charter documents how the project will be executed

   a. True

   (b.) False

2. Cost-benefit analysis is a technique for developing Project Charter.

   (a.) True

   b. False

3. The term WBS stands for Work Baseline Sequence

   a. True

   (b.) False

4. Invisibility, Complexity and Feasibility are the characteristics of the product

   a. True

   (b.) False

5. According to D.C. Ferns a programme as "a group of projects that are managed in a coordinated way to gain benefits that would not be possible were the projects to be managed independently"

   (a.) True

   b. False

6. What is a Stakeholder?

   a. The person responsible for preparing the budget

b. A third-party organization hired to do the job

c. A person or organization that is actively involved in the project, or whose interests may be positive or negatively affected by execution or completion of the project

d. A person or organization that defines the legal rules and procedures, economy and regulatory frameworks for your organization

7. The role of the project manager includes

a. Leading the functional managers towards reaching the strategic objectives

b. Leading the team that is responsible for achieving the project objectives

c. All of the above

d. None of the above

8. The payback time means

a. The time taken to receive the first payment for the project

b. The time taken to receive all the payment for the project is received

c. The time taken to do the breakeven

d. The time taken to completely deliver the project

9. The three modes based on the technical nature of the project defined in COCOMO II model are

a. Embedded, Organic and Detached

b. Embedded, Organic and Semi-Detached

c. Embedded, Organic and Semi-Organic

d. Embedded, Organic and Semi-Embedded

10. Term Gold Plating refers to

a. Adding the feature that the customer or management has not asked for in the requirements

b. Act of finishing the project ahead of the schedule and under budget

c. A project management technique aimed at improving the project quality

d. None of the above

Question 2 [CLO-1]

9/ 3 +4+ 3 points

a. What are different types of organizational structures? (3)

There are following types of organization:

- Flat structure: used in most software houses
- Tall structure: used in military, large team
- Boundryless structure: Teams from different geographical areas.
- Virtual Structure: Mostly work on electronic media

b. What are the two types of prototyping? When should each of them be used? (4)

Protypes are of two types

Throw Away Protype: It is used when only UI is shown to user. usually throw away. used in early development cycle. To learn something new or experiment with something.

Iterative Prototype: It is used to get user's approval and later on the team improves it further to add more functionalities. To get user's feedback, even on later cycles.

c. When should the waterfall model be preferred over other approaches? (2)

Waterfall method should be preferred when the requirements are clear and there is no ambiguity and uncertainty. We have made the exact product before.

Question 3 [CLO-2] 4/ 1+1+1+2 points

From the given data calculate the payback period, net profit, ROI and NPV using 10% discount rate.

Remember to show your working

Year	Cashflow
0	-350,000
1	50,000
2	100,000
3	50,000
4	150,000
5	200,000

Use the following for discount rate ranges

	Discount rate (%)					
Year	5	6	8	10	12	15
1	0.9524	0.9434	0.9259	0.9091	0.8929	0.8696
2	0.9070	0.8900	0.8573	0.8264	0.7972	0.7561
3	0.8638	0.8396	0.7938	0.7513	0.7118	0.6575
4	0.8227	0.7921	0.7350	0.6830	0.6355	0.5718
5	0.7835	0.7473	0.6806	0.6209	0.5674	0.4972
6	0.7462	0.7050	0.6302	0.5645	0.5066	0.4323
7	0.7107	0.6651	0.5835	0.5132	0.4523	0.3759
8	0.6768	0.6274	0.5403	0.4665	0.4039	0.3269
9	0.6446	0.5919	0.5002	0.4241	0.3606	0.2843
10	0.6139	0.5584	0.4632	0.3855	0.3220	0.2472
15	0.4810	0.4173	0.3152	0.2394	0.1827	0.1229
20	0.3769	0.3118	0.2145	0.1486	0.1037	0.0611
25	0.2953	0.2330	0.1460	0.0923	0.0588	0.0304

Year	cash flow	Cumulative cash flow
0	-350,000	-350,000
1	50,000	-300,000
2	100,000	-200,000
3	50,000	-150,000
4	150,000	0
5	200,000	200,000

Payback period = 4 years ① when NPV value become 0

Net profit = 200,000 ① Total profit - expense

ROT = $\frac{200,000}{350,000} \times 100 = 57\%$ with net profit | $\frac{50,000/5}{350,000} \times 100 = 31\%$ ✗ ⓪ on avg cashflow

NPV = $50,000 \times \frac{0.9091}{} + 100,000 \times 0.8264 + 50,000 \times 0.7513 +$
$150,000 \times 0.6830 + 200,000 \times 0.6209$

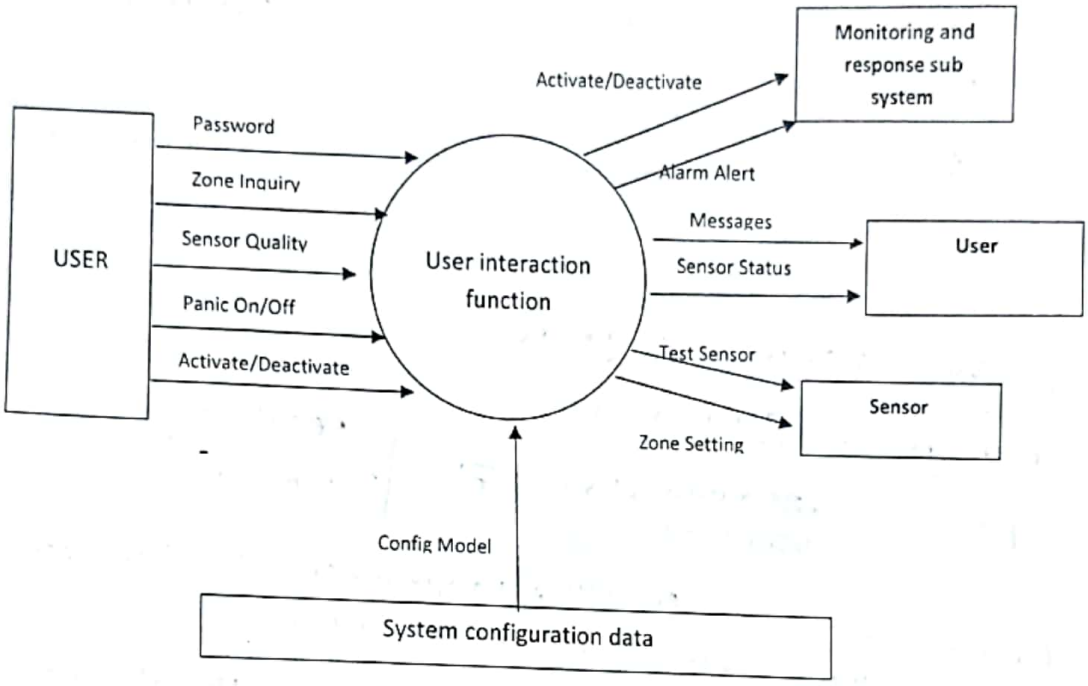
$45455 + 82640 + 37565 + 102450 + 124180$

NPV = 392,290 − 350,000

= 42,290 − ②

Question 4 [CLO-2] 3/ 7 + 3 points

a. Using the data flow model for a function within a security software calculate the unadjusted Albrecht Functic Points assuming that all components are of low complexity



External user type	Multiplier		
	Low	Average	High
External input type	3	4	6
External output type	4	5	7
External inquiry type	3	4	6
Logical internal file type	7	10	15
External interface file type	5	7	10

$3\times3+2\times4+2\times3+1\times7+2\times5$

0045

External Input type: 3 ×

External Output type: 2 ✓

External inquiry type: 2 ×

Logical internal file type: 1 ✓

External interface file type: 4 ✓

Function Points: (3×3) + (2×4) + (2×3) + (1×7) + (4×5)

= 50 ✓ (5)

b. Using these function points and Caper Jones rules of thumb calculate the Calander Months required to complete the development of this function

Development time in Calendar Month $= h(50)^{0.4} = 4.78$ months.

$= (FP)^{0.4}$ ✓ (3)