

20



Försättsblad till tentamen/Cover sheet for Examination

Kursnamn/ Course: Avancerad projektstyrning inom programvarutillverkning

Kurskod/Course code: PA2513

Datum/Date: 2014-11-01

(Ifyller av studenten, v.g. texta/To be filled in by the Student, block capitals)

Studentens namn/Student's Name

PRIYANUDEEP EADA

Personnummer/Personal civic number

9206088776

Inlämnade blad/Submitted papers

Inlämtn. tid/Submission time

13:51

Lösta uppgifter/Questions attempted: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

ANVISNINGAR/INSTRUCTIONS

Inlämning får ske tidigast efter 60 minuter. Skriv namn och personnummer på samtliga inlämningspapper. Eventuella beräkningar ska finnas med i tentamen. Även "blank" tentamen ska lämnas in. Resultatet av skrivningen meddelas via e-post senast 15 arbetsdagar efter tentamensdatum. Undantagsvis kan avvikelse förekomma.

Submission is allowed after 60 minutes. Write your name and personal civic nr. on each page. Any assessments should be included in the examination. Also "blank" examinations must be submitted. The results of the exam will be given by e-mail within 15 working days after the examination date. Exceptionally, deviation may occur.

Ansvarig lärare/Responsible teacher: Samuel Fricker

Meddelande från ansvarig lärare/Information from responsible teacher:

Kommer till salen klockan: -

Kan nås på telefon: +46 73 422 3819

Tillåtna hjälpmmedel: none (dictionaries without personal notes are ok)

(Ifyller av tentarnensvakt/to be filled in by the invigilator)

Legitimation uppvisad, sign:

Xt /C

(Ifyller av ansvarig lärare/to be filled in by the responsible teacher)

Poäng/points:

30.75

Betyg/grade:

A

ECTS:

3.5

Sign:

B.F.d)

(Ifyller av studenten vid utkvittering av rättad tentamen/To be filled in by the student when signing on the corrected examination)

Härmed utkvitterar jag denna tentamensskrivning. Jag är medveten om att jag därmed förbrukar min rätt att opponera mig mot gjord rättning, poäng och betygssättning./ Hereby, I signed this examination writing. I am aware that I thus consume my right to opposing made corrections, credits and grades.

Datum/Date:

Underskrift/Signature:

Part I

Calculation of points for multiple choice questions: after the presentation of the question, the number of points (p) and the number of expected answers (n) is given. For each correctly selected answer p/n points are given. For each incorrectly selected answer p/n points are deducted. For missing answers 0 points are given (no points deducted). The total amount of points for a given question corresponds to the sum of points minus the sum of deductions. If the total for a question results in a negative number, the question will be evaluated with 0 points.

1. A business model describes how an organization creates, delivers and captures value. Osterwalder's Business Model Canvas is one of the tools that have been used to review and challenge existing models. Which three of the following decisions are captured with the Business Model Canvas? (3 answers, 1 point)
 - a. The choice of the software development lifecycle model (e.g. Agile vs. Waterfall)
 - b. The choice of the product delivery mechanism (e.g. SaaS vs. mobile app)
 - c. The choice of the value proposed to the customer (e.g. cost reduction vs. improved availability)
 - d. The choice of the re-investment mechanism for new features (e.g. market skimming vs. growth)
 - e. The choice of product development partners (e.g. outsourcing vs. insourcing)

1
2. Roadmaps need to be communicated once they are constructed. Which two of the following aims are pursued with such roadmap communication? (2 answers, 1 point)
 - a. to share requirements of the product with new developers
 - b. to motivate sustainability of the product for potential customers
 - c. to agree on evolution of the product with company management
 - d. to analyse cost of the product with project managers
 - e. to indicate skill development needs to service and support

0.5
3. PMBOK prescribes inputs, tools and techniques, and output for project management processes. Which of the following Items are the outputs of "Scope Management" knowledge area? (2 answers, 1 point)
 - a. Gantt chart
 - b. Project Charter
 - c. Project Scope Statement
 - d. Work Breakdown Structure
 - e. Development lifecycle model
 - f. Schedule Baseline

1

Name: PRIYANUDEEP EADA
Personal number: 9206088776

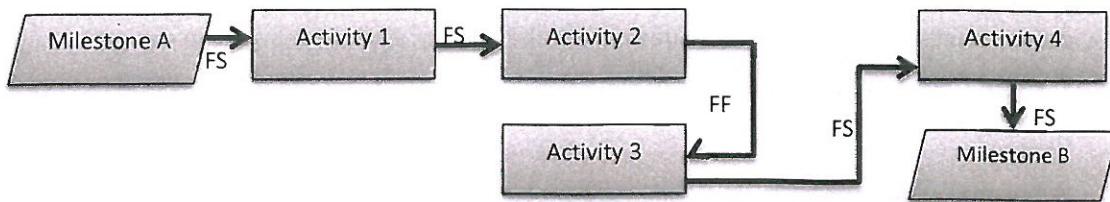
4. You as a project manager have defined the activities with the following duration:

Activity 1: 20 days

Activity 2: 8 days

Activity 3: 5 days

Activity 4: 7 days



Considering the relationship between activities (FS: Finish-To-Start, FF: Finish-To-Finish), what is the minimum total duration between the milestones A and B? (1 answer, 1 points)

- a. 30 days
 b. 35 days
 c. 40 days
 d. 32 days
 e. None of them

5. To perform quality control of a project, you as project manager have come up with a bar graph of problems and their frequencies. This kind of a chart is called a: (1 answer, 1 points)

- a. Fishbone chart
 b. Control chart
 c. Pareto chart
 d. Ishikawa diagram

6. To plan quality management activities, software quality standards are used as references. Which standard is not a quality related standard? (1 answer, 1 points)

- a. ISO 25010
 b. ISO 9003
 c. ISO 9126
 d. ISO 12207
 e. ISO 15939

7. You are the project manager of a project whose team has interacted with a number of stakeholders. You feel that in order to have a very objective project performance appraisal, you would like to obtain feedback for the project team members from all the people they have worked with, including superiors, peers and subordinates. Project performance appraisals are carried out during which of the following processes? (1 answer, 1 points)

- a. Develop Project Team
 b. Acquire Project Team
 c. Manage Project Team
 d. Close Project or Phase

Name: PRIYANUDEEP EADA
Personal number: 9206088776

8. Projects are prone to risks. During which state of risk planning are risks prioritized based on their relative probability and impact? (1 answer, 1 point)

- 11
- a. Risk Identification
 - b. Quantitative Risk Analysis
 - c. Qualitative Risk Analysis
 - d. Risk Responses Planning
 - e. Risk Monitoring and control

9. Mini project:

The MSG project is to develop a software product to support the Martha Stockton Greengage (MSG) Foundation that helps young couples in purchasing their own homes by providing low-cost loans.

The software must determine how much money is available each week for funding the loans. To do this, the system must also help in the application and tracking of mortgages, manage foundation investments, and estimate incoming and outgoing cash flow.

The product will allow the clients to add, modify, and delete information regarding the Foundation's investments, operating expenses, and individual mortgage information. The product will perform the required calculations in these areas and produce reports listing investments, mortgages, and weekly operation expenses.

Assumptions and constraints:

- Martha Stockton Greengage has already provided the list of requirements.
- The product should be provided during the next 4 months
- The product must be reliable and encourage users to select this product in compare to other competitors' products.
- Architecture must be open to add more functionality in future.
- The budget is limited that can support just four fulltime junior software developers.

You are assigned as the project manager for this project.

- a. What software development lifecycle model do you select? Why do you select it for this project (1 point)

12

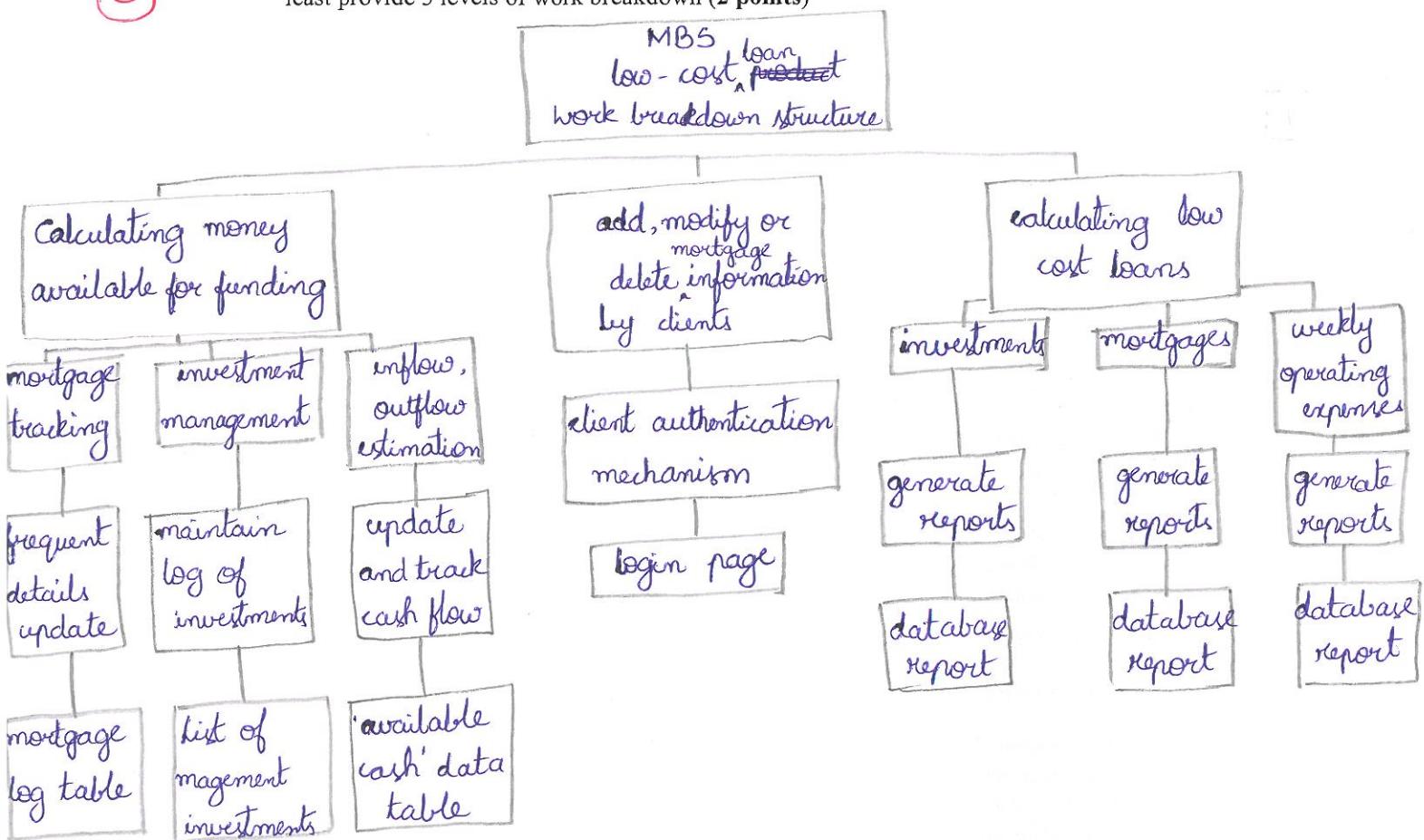
Scrum model of development is selected as the software development model for the following reasons:

- given that the architecture must be open to add functions in future, the possibility of adopting traditional lifecycle methods, such as waterfall, is diminished due to the rigidity in the life cycle processes.
- Therefore, agile development models are suitable to accommodate changes that occur in the future. Also, due to the limited availability of staff members, it is suitable to work in short duration sprints that would add up to the overall product development.

Name: PRIYANUDEEP EADA
 Personal number: 9206088776

Q2

- b. Create a Work Breakdown Structure (WBS) and WBS dictionary for the project! Please at least provide 3 levels of work breakdown (2 points)



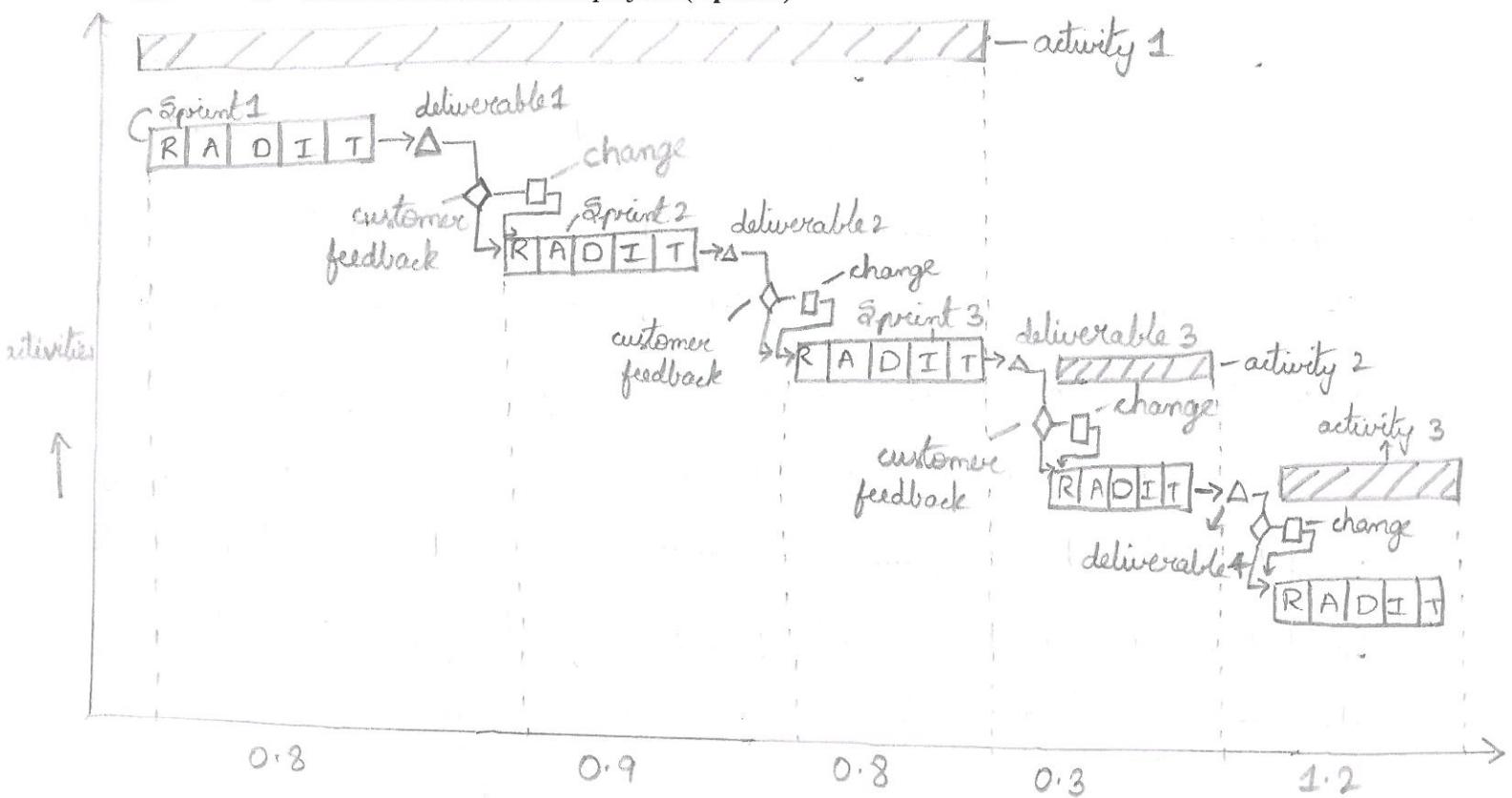
* WBS dictionary:

- the tasks performed by this product are: i, calculating money for refunding, ii, add, modify or delete mortgage information by clients iii, calculating low cost loans.
- the tasks mentioned are verified against the deliverables of each work. These deliverables are 'mortgage log' table, 'list of management investments', 'available cash' data table, 'login page', 'database' reports related to investments, mortgages & weekly operating expenses.

Use IDs for WBS & tasks to show hierarchy.

Q

- c. Create a Gantt chart for the project! (2 points)



- The project is carried out in several sprints. Each sprint consists of the phases Requirements analysis (R), architecture design (A), development(D), implementation (I) and testing (T).
- a deliverable (represented as 's') is an output of every sprint. Customer feedback is taken after each sprint and if there are any changes, they are implemented and further proceeded to the next sprint.
- overall three project activities encompass the entire project:
 - activity 1: Calculating money for funding. deliverables: mortgage table, investment table etc.
 - activity 2: add, modify or delete mortgage information. deliverables: secured login page.
 - activity 3: calculating low cost loans. deliverables: reports on mortgages, investments

- NOTE: the time line above includes holidays and also includes the solutions for the tasks. This is shown by the customer feedback and change implementation phases.

- T1.5 d. How will you allocate resources for the activities shown in the Gantt chart you provided from point c? Show which roles are assigned to each activity in the Gantt chart! (2 points)

The entire project is carried out in short period 'sprints'. Each sprint consists of requirements gathering, architecture design, development, implementation and testing phases. As there are only 4 software developers available, all the members are involved ^{how?} ~~in~~ during each sprint. The most experienced of these developers is made the sprint master who will rectify any problems related to the project's progress. After the completion of every sprint, feedback from customers is taken during assessment period. Any changes suggested during this ~~meeting~~ meeting is included in the subsequent sprints.

How to distribute tasks between developers?

All involve in requirement Gathering? ^{full-time?} ~~(not graded)~~

- T2 e. Given the application domain area of the software project, quality is important. List the project deliverable and their relevant quality criteria? Motivate why these criterion are relevant for the respective deliverable! (2 points)

The following are the deliverables in this project and the associated quality criteria:

- mortgage log table: this database table is maintained to organize the mortgages of the organization. 'Security' quality criteria is ensured to this module, also with the 'reliability' criteria to see to it that the system is available most of the time.
- login page: to determine the authenticity of the client, it is important to ensure 'security' quality criteria. This is to make sure that only eligible clients are given privileges to manipulate data.
- database reports: it is important that these reports are 'consistent' and 'reliable'. Any report generated at a particular time must reflect the most recent updates made in the system.

Name: PRIYANUDEEP EADA
Personal number: 9206082116

- f. List the risks of the project and their severity (four risks). What solutions do you propose for your risks (align your Gantt chart with the solutions if required)? (2 points)

1.75

RISKS

1. Inexperienced software developers may affect the overall product quality.

Training should be reflected in Gantl:

2. Limited time to develop the product may result in unfinished product development.

3. Staff attrition may hinder the project activities

4. Changing requirements

MITIGATION STRATEGY

1. As requirements are provided before hand, short training sessions can be held at the beginning of every sprint. This makes the developers understand the project scope and project activities in an effective way.

2. Every sprint project which lasts not more than 2-3 weeks is given a pre-set deadline, just a few days before the actual deadline. This is done to ensure that the projects' progress is assessed during this period and the pending tasks are accordingly accomplished based on priority.

3. Due to the limited time allocated to the project, this risk is less severe. However, to handle this issue, incentives are announced before the project starts. This will maintain the employees' interest in the projects.

4. All software projects suffer from this risk. Due to the inherent nature of scrum model of development, any changes that might arise in the future can be accommodated into the project.

Name: PRIYANUDEEP EADA
Personal number: 9206088776

Please DO NOT write your answers in this page!

16 P

Name: PRIVANUDEEP EADA
Personal number: 9206088776

Part II

Q1. 3 points

3P

Explain the main concepts of Maslow's hierarchy of needs. Describe the drawbacks of this theory, when it is used for motivating people. Explain how these drawbacks are solved in other related theories of motivation.

- According to Maslow's theory, human needs are classified into five levels:

- i, physiological (water, food)
- ii, safety (shelter)
- iii, love/belonging (social relations)
- iv, esteem (respect)
- v, self actualization.

- only one need is dominant at a time. A person remains at a need level until it is satisfied.

- Blocked need satisfaction is not addressed by Maslow's theory. This is answered in ERG theory which states that a person will regress to a lower level due to cognitive dissonance.

Q2. 2 points

2P Give examples of intrinsic and extrinsic motivators. Which of these are more powerful in the context of software projects and why?

Extrinsic motivators are the 'carrots' and 'sticks' offered by an organization for a successful solution to a problem involving logical methods. These include salary bonuses, week end parties or paid vacation announced by the management of a company to its employees.

Intrinsic motivators are related to an individual and include autonomy to decide one's activities, mastery to outperform the activities and performance. Intrinsic motivators are more powerful than extrinsic motivators as they drive individuals to perform the best they could.

Q3. 1 point
1P Each leader has his/her natural preferences for how to lead people. Some leaders are more people-oriented others are more task-oriented. Which leadership style is better and why?

Empirical evidences have also suggested that there is no best style of leadership. Therefore the choice of people-oriented or task-oriented style depends on the context and situation. Both the approaches equally have merits and suffer from drawbacks.

Q4. 1 point

4P

Which factors have an influence on leadership style of a leader? Provide examples.

The situation surrounding a leader is a ~~for~~ factor that influences the style of leadership. Also, the ~~willingness~~ ^{readiness} of the followers is a factor that largely influences the choice. ~~willingness~~ ^{Readiness} is defined as a combination of ability of an individual and the ~~compe~~ ^{willingness} level.

ex: 'Telling' leadership style is suitable for followers who are unable and unwilling.

Q5. 4 points

3P

Describe situational leadership concepts. Describe decision-making process from the situational leadership perspective.

The following 4 are the styles of situational leadership:

- Telling: highly task oriented and less relationship oriented style of leadership. It is suitable in situations where followers are unable and unwilling.
- Setting: high task oriented and high relationship oriented style of leadership. Occasional rewards and punishments characterize this style.
- Participating: low task oriented and high relationship oriented style of leadership. Suitable in maintaining membership in an organization.
- Delegating: suitable for low activity organizations that are low task oriented and low relationship oriented in nature.

Q6. 4 points

3P

For each readiness level (R1-R4), name and describe the main type of power one most likely will use as a leader. Give a short explanation

Readiness level:	R4 <u>Able, willing or confident</u>	R3 <u>Able, unwilling or insecure</u>	R2 <u>unable, willing or confident</u>	R1 <u>unable or unwilling or insecure</u>
Power used:	<u>Expert</u>	<u>referent</u>	<u>rewarding</u>	<u>coercive</u>

Coercive: supreme authority rests in the leader. Dictates every activity

Rewarding: conceding authority with rewards or punishments to the work

Referent: the power vested in the leader to offer benefits towards good output?

Expert: cognitive experience in rewarding and managing activities?

Q7. 2 points

2p

Douglas McGregor published his now classic Theory X and Y in 1957. Explain the major concepts of this theory and why is it important to know from the managerial perspective.

Douglas McGregor's theory:

THEORY X

1. work is not motivational or inspiring.
2. Followers are not motivated to accomplish any tasks of the organization
3. Followers either lack or contain very less creativity required to solve a problem
4. Motivation exists only in the physiological and security level needs.
5. Require supervision & close monitoring

- McGregor's theory is important from the managerial perspective in understanding the behavior of the team members or followers. This theory helps to identify behavior and accordingly select a leadership style.

Q8. 3 points

4p

Answer the following true/false questions. Only one answer is correct. Please, underline the correct answer. If you choose the wrong answer, then 0.5 points will be deducted:

True / False A manager should consistently behave according to Theory Y ✗

True / False Herzberg's hygiene factors produce growth in worked output capacity ✗

True / False Task-oriented leaders tend to perform best in group situations that are either very favorable or very unfavorable to the leader. ✓

True / False A leader that makes a decision by himself and then simply announces it is always fails ✓

True / False Empirical studies have shown that there is a normative (best) style of leadership. ✓

True / False Herzberg's hygiene factors help to achieve self-actualization ✓

