

Professional IT Practices in IT (CS 4001)

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Section

Student Signature

Attempt all questions. Write your answer for Question 3 directly on the question paper. Answer the remaining questions on the answer sheet in the same order as they appear on the question paper. All of your descriptive answers must be in the form of bullet points. Each bullet

point must be less than three lines on the answer sheet. Longer answers in the form of paragraphs will be discarded.

CLO

Question1: Identify each of the following as either Analytical or Non-analytical job evaluation scheme. [6]

Mehwish Mumtaz	Job	
Sessional-II Exam		
Total Time (Hrs):	1	
Total Marks:	42	
Total Questions:	4	
evaluation scheme		Analytical / Non-analytical
In a startup, the HR team compares the roles of software developer, marketing manager, and sales associate pairwise. Each job is judged against each other for overall impact, and the number of "wins" determines the final rank.		Non
A government agency has job grades like GS-5 (entry-level clerical), GS-9 (analyst), and GS-12 (management). Roles like Administrative Assistant, Data Analyst, and Program Manager are placed in these grades without a detailed factor breakdown.		Non
A manufacturing company evaluates jobs based on factors like "physical effort," "skill level," "working conditions," and "responsibility." These factors are valued in dollars and applied to roles like assembly line workers and machine operators to determine job pay rates.		Ana

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In a small nonprofit, roles are ranked simply based on importance to mission fulfillment, with positions like Executive Director, Program Manager, and Volunteer Coordinator arranged by rank.	Non
A healthcare organization uses the Hay System to assess roles across departments. A nurse, doctor, and hospital administrator would be scored based on their required expertise, decision-making, and responsibility for patient care.	Ana
A company uses a point factor system with factors like "technical skills," "leadership responsibilities," and "problem-solving complexity" for roles in a tech firm. Each factor is weighted and scored, and a software engineer and project manager would have their job components scored to determine rank.	Ana

Question2: Case Study: Syniad Software Ltd.

Syniad Software Ltd., a bespoke software development company, has been successful for ten years. However, the company faces challenges in staff management, budgeting, and expansion. With 50 staff members, the company has maintained a personalized approach, but this has become difficult as the company grows. Staff loyalty has diminished, and new employees feel like outsiders.

Syniad's organizational structure is functional, with separate departments for technical, revenue-earning, and non-revenue-earning staff. While this structure has worked well in the past, it may not be suitable for a growing company. The company also has a geographical element, with offices in London, Manchester, and Delft, Netherlands.

One of the significant challenges Syniad faces is staff management. As the company grows, it becomes increasingly difficult to maintain personalized relationships with staff members. New employees feel like outsiders, and staff loyalty has diminished. Syniad needs to find ways to address these issues and ensure that staff feel valued and engaged.

Another challenge Syniad faces is budgeting. The company has a reputation for delivering high-quality software solutions, but this requires significant investment in staff training and development. Syniad needs to balance its budget to ensure that it can continue to deliver high-quality solutions while also investing in its staff.

Expansion is another area where Syniad faces challenges. The company has been successful in the UK and Netherlands, but it wants to expand into Germany. However, this poses significant challenges, including finding the right staff, establishing a new office, and navigating cultural differences.

To address these challenges, Syniad needs to develop a comprehensive strategy that addresses staff management, budgeting, and expansion. This may involve changes to its organizational structure, staff training and development programs, and expansion plans. [2x3]

Question: How can Syniad improve staff loyalty and reduce the "outsider" feeling among new employees?

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Staff Appraisals: employees' achievements and contributions to the company should be properly recorded; staff should know what was expected of them and what they needed to achieve in order to gain promotion

Question: What strategies can Syniad use to maintain standards and company loyalty as the company continues to grow?

Prioritize Open and Transparent Communication

Nurture Employee Development and Career Growth

Con is more capital is required to acquire new company.
Pro is that they will get the business along with acquisition.

- ▶ There may be difficulties in integrating the company with Syniad; and there is a risk that the staff in the company will be unhappy about the change of ownership and leave rapidly; thus destroying value of investment.
- ▶ Building from scratch requires less investment and there will be fewer problems of integration but the risks are high; success depends crucially on being able to recruit the right person as local manager

Question: What are the pros and cons of expanding into Germany by buying an existing company versus establishing a new one?

Question3: Consider the following and answer each question accordingly.

Motorola Vs Apple vs Samsung and Google

In 2010, as smartphones became increasingly integral to our daily lives, Apple found itself in a legal dispute with Samsung over alleged infringement of patent protection rights related to their phone products. Interestingly, Apple's primary concern wasn't just Samsung but also Google's Android software, which powered Samsung's phones and those of other third-party manufacturers. Google's legal team became involved, partly due to a 'Mobile Application Distribution Agreement,' extending support to Samsung in navigating the legal challenges. Concurrently, in a notable case in tech history, Motorola sued Apple. The accusations included Apple's infringement of several patents related to the 3G phone operation, while Apple counterclaimed, accusing Motorola of violating patent rights concerning various smartphone features. This legal battle proved so vexing for the court that, in 2012, the case was dismissed three times. The judges cited insufficient evidence from both parties and urged them to resolve outside of the courtroom. Notably, 2012 was the year Google acquired Motorola.

[3x3]

Question: In the Apple vs. Samsung case, Apple claimed Samsung infringed on its patents, while Motorola also sued Apple for violating its 3G technology patents. Considering the multi-party disputes, analyze the strategic steps Apple could take to protect its patent rights and strengthen its legal position against both Samsung and Motorola. Additionally, suggest how Samsung and Motorola could defend against Apple's claims, given their reliance on Google's Android software.

Answer Guide: Students should address Apple's strategies, such as additional patent filings, narrowing its claims to specific, defensible features, or negotiating settlements to avoid prolonged litigation. Samsung and Motorola could argue prior art or seek to invalidate Apple's patents as overly broad.

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Question: In the context of Google's Mobile Application Distribution Agreement with Samsung, discuss the potential advantages and risks for Google in supporting Samsung's patent defense. How might the acquisition of Motorola impact Google's ability to defend Android's software patents, especially given Motorola's extensive patent portfolio?

Answer Guide: Students should evaluate the strategic value of Google's patent portfolio from Motorola and discuss potential conflicts if Google's technology overlaps with disputed areas in the litigation. The response should include licensing benefits, competitive risks, and defense against potential Android-related infringement claims.

Question: Given the extensive legal battles, evaluate how Apple, Samsung, and Google might use cross-licensing agreements to resolve the conflict. Outline the benefits and possible downsides of cross-licensing for these technology giants.

Answer Guide: Students should discuss cross-licensing benefits, like reducing litigation and enabling collaboration. Downsides might include limiting competitive advantages or sharing proprietary technology, potentially weakening Apple's exclusive market position.

Question4: Please identify suitable contract for the following scenarios. Also state the reason in no more than two lines.[3x2]

Computer contracts: Custom-built software at fixed price, contract-hire, time and material, consultancy.

1. A startup in the fintech industry needs a custom software solution for real-time financial analytics and reporting. The industry is fast-paced, with new regulatory and technological changes emerging regularly. The company has some initial requirements but expects ongoing changes as they refine their product to match evolving market demands. They plan to work closely with the development team, providing regular feedback and adapting the software based on early testing and user feedback.
2. A university wants a custom course registration system. They have a well-defined list of requirements and a strict deadline, as they need the system operational before the start of the next academic year. They provide comprehensive documentation that includes every function and feature they need, and they don't anticipate making major changes.

Fixed-Price Contract

Question5: Case-study: Software Development Project for MedHealth [3x2]

Background:

MedHealth, a leading healthcare organization, required a custom electronic health record (EHR) system to improve patient care and streamline clinical workflows. They contracted TechCorp, a software development company, to deliver the project within a tight deadline and fixed budget.

Project Details:

- Project scope: Design and develop a comprehensive EHR system for MedHealth's network of hospitals and clinics.
- Deadline: 12 months
- Budget: \$1.5 million
- Team size: 10 developers, 2 project managers, 1 quality assurance engineer

Project Execution:

TechCorp's team worked diligently to meet the deadline, but they faced several challenges:

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- Complex requirements: MedHealth's stakeholders had diverse and evolving requirements, leading to scope creep.
- Technical debt: The team had to use legacy code and integrate with existing systems, which increased development time.
- Resource constraints: The team was understaffed, and the budget was insufficient for the project's scope.

Compromises:

To meet the deadline, TechCorp's team made compromises on quality:

- Reduced testing and quality assurance activities
- Implemented workarounds instead of proper fixes
- Skipped documentation and knowledge transfer

Issues and Consequences:

After deployment, MedHealth reported several critical issues:

- Data loss and corruption
- System crashes and downtime
- Privacy concerns and data breaches

These issues led to:

- Legal and reputational damage for MedHealth
- Financial losses due to system downtime and remediation efforts
- Patient safety concerns and potential harm

Question: MedHealth could potentially claim that TechCorp was negligent in the EHR system's development. Identify and analyze specific decisions or actions taken by TechCorp that might constitute negligence.

Students should explore the duty of care TechCorp owed to MedHealth, focusing on the reduced testing, insufficient quality assurance, and lack of documentation as possible breaches of standard practice. Each compromise could be seen as evidence of TechCorp's failure to exercise reasonable care, making it easier for MedHealth to argue negligence.

Question: TechCorp and MedHealth had a contract that likely included warranties of functionality, reliability, and compliance with healthcare standards. If MedHealth claims a breach of warranty, what specific issues or system failures in the EHR software would support this claim?

The response should cover express and implied warranties. MedHealth could claim that the system's failures to maintain patient data integrity and avoid data breaches were breaches of an implied warranty of fitness for a particular purpose. TechCorp might defend itself by arguing that scope changes and budget limitations restricted its ability to ensure full functionality, or that MedHealth's own handling of requirements contributed to the issues.