TASK 1:

a) In terms of fast delivery there are a few solutions. One of them being to expand their warehouses to more locations/countries. If it's for example in a bigger city they could have a better system for route planning to avoid traffic and deliver quicker, and another thing they could do is hire drivers that know their way around the city. Also maybe having better vehicles especially in the wintertime. In terms real time tracking that shouldn't really be hard to do with the technology we have nowadays.

b) To track the packages in real time we have some options. The best one being to use GPS and live positioning software. For example when a parcel is scanned it can get assigned to a vehicle which has some sort of IoT device that reports the position of the vehicle based on GPS coordinates like a transmitter. Even if the parcel changes vehicles, it then again changes to the next vehicle when it's scanned. The amazing part of real time tracking are the benefits. We can for example use artificial intelligence to help predict traffic and routes or even if a driver gets stuck in traffic that can get relayed to other drivers so they take another route. Almost like the artificial intelligence working as a hive mind working with all the drivers together and learning.

c) The role of a chief innovation officer is basically to be responsible for innovations and changes in a company. How can I as CIO combine my innovation and business strategy to work for the company? In terms of UPS my role would be to further enhance our technology and strategy especially because of all the new emerging technologies. Better systems, routes just in general implement changes to the company and strategy. Can't keep using old methods, we need to change and that's part of my role. Like mentioned before a good example of my role would be coming up with ideas like real time tracking and how could we implement that, same with faster deliveries. Being aware and keeping an eye on emerging technologies is an important part of my role.

d) The best way in my opinion would be hiring people or working together with another company to implement those solutions. Obviously our main objective in UPS is delivering packages and I imagine there being some sort of IT department, but obviously we might not have people who know how to implement real time tracking for example. Therefore we can hire people in the IT side who can implement and work on/maintain the technologies. Or we can also work with another company who specializes in what we need.

e) Like I mentioned we might need to hire new people to work on the new technology which could help in **reducing poverty** by providing jobs especially if we plan to expand to more countries/cities. We can hire drivers which doesn't necessarily require an education. This also goes into the **decent work and economic growth** side. Then of course going into providing real time tracking as part of my role which is innovation we again go into the point of **industry innovation and infrastructure.** The most important point in my opinion is being **climate action**. If we use real time tracking combines with artificial intelligence we can provide better routes to decrease travel time which in turns decreases the CO2 emissions. Or even like I said better and newer vehicles, because UPS is still using those old trucks. Also if our warehouses are more spread out the less delivery distance it requires.

TASK 2:

a) A good solution for this is using for example game engines or any 3D rendering software. Same with animation and editing, just having software to do it live and easily screen share. Not just that but games as well, here I mean more interactive games that can be used to teach, not the usual mainstream games. For example we could have the students using the game engines to show/create things in real time or for example for medical students a teacher could use VR combined with some game/software to show

and explain the anatomy of a human or animal or just using some sort of 3D software showing the anatomy there. Art students can make use of this as well, software that let's you draw together with others. Just in general screen sharing is already a good start or even just having a camera if there's physical objects. For example there is an amazing program called Parsec which let's groups of people share their screen and let others take over control of their mouse and keyboard. Another great example is Arduino. We can use the online editor to create the same physical object but virtually and even test It out. For programmers there are many alternatives it only requires screen share and if you combine that with Parsec the teacher can then help write the code.

b) That's a tough question but a very relevant topic nowadays. I have heard of a program called ScreenWatch, but I can't exactly say if it would work with a lot of students. Another option for example during an exam to limit the use of internet could be to use something called LockDown Browser OEM. Those are the only options I can think of, pretty sure if there was an easy solution to this it would already be implemented.

c) Obviously there's probably people out there that are already working on solutions and there's probably software being in development to combat this problem. As for me at the moment the only solutions I can think of are the software that I mentioned.

d) Having some sort of software to monitor the students is a matter of privacy so not everyone might be so willing to just install some software they've never heard about. In terms of impact for online learning I think the biggest challenge would be getting people to actually come forth and work together which already is a challenge with online learning. Even in this course there were almost no people who had the camera on or any involvement during the classes. So the biggest challenge is getting people involved and communicating and not just a black screen watching the class especially if we want to have digital labs like mentioned in question a. Good proof of that is when we worked with Arduino in another class, because the Arduino has a virtual editor people didn't

need to buy the physical object and could just share their screens and the Arduino boards they created, explaining how they work. Feedback is also another huge part of the online learning experience. It definitely is a challenge for the teacher to provide help and feedback especially when there's so many students and if no one is asking for help or showing their work.

e) Here first and foremost we can obviously insert point number 4 of the SDGs which is **quality education**. Especially if we start utilizing online learning more, we can provide education to more people even around the world and not just locally. This way we would not just be providing education but also **decreasing poverty** by giving people educations and possibilities to acquire jobs. This way we also can increase **decent work and economic growth** by providing people with better and higher education they can acquire better jobs.

TASK 3:

a) All of the mentioned problems can be fixed with a well designed and implemented effective system. A lot of hospitals still use very outdated systems or methods by having to do everything by hand. In terms of evaluating patients' artificial intelligence can be a game changer in this situation. It can use algorithms to evaluate a patient by looking at the symptoms and learn from previous instances thus providing the staff with quicker evaluations. The digital system can help sort patients to which department a patient should be assigned to, which staff should be assigned to where, prioritize patients with more serious matters although we still need to make sure the last decider are the staff for ethical reasons. Also there's a lot of tasks than can be automated, of course all of them being digital and not physical tasks for example registering patients and scheduling. Resource management is also a very important part of the transformation. By using supply chain and automating the process of collecting data, ordering, paying for

medical supplies hospitals can reduce supply chain and inventory management related costs.

b) Our main focus here will be artificial intelligence/machine learning. Like I already mentioned everything can be made automated, faster, and more efficient. From evaluating patients, to automating manual tasks like registering/scheduling and assigning staff, to ordering supplies which not everyone is qualified or taught to do, to even predicting the flow of patients coming in and out

c) By utilizing cloud we can easily store data without having to buy hardware to store the desired data. Not just that but it's highly scalable, so if there is desire for more storage it is done easily. Also the cloud is working 24/7 so it is always available and accessible. So what could then be the disadvantages if it all looks so perfect. Well since we are not the ones responsible for keeping the cloud running technically we are kind of relying a lot on the ones running it hoping it never fails for example they can experience outages or malfunctions. Also another concern is privacy and security. Again we are not the ones responsible for keeping the cloud secure and private so any breaches will be devastating and the service providers fault which we could do nothing about. Especially since we have a lot of different personal information of patients.
   For the four cloud models we have public, private, community and hybrid. We then also have SaaS, PaaS and IaaS.

d) Not sure on this one. Since it's a public organization maybe they can ask the government for support and aid. Hospitals can try to work together to help with providing the solution. Even asking for volunteers or people they know who can maybe help or are involved in that sector.

e) Again same as with education we can instantly point to number 3 being **good health and well-being.** The other important point being **number 9**. Innovating the healthcare

system and hospitals would definitely help. Making the whole process and system more efficient.

TASK 4:

a) Defensive and offensive strategies are exactly what the name implies. In business transformation a defensive strategy is basically trying to keep up in the industry with other similar businesses, trying to survive and still being in the competition. A lot of old businesses that have been running for many years have to often implement a defensive strategy because of evolving technologies and new companies. As for an offensive it's trying to come up with something new and coming out on top to be one of the leading businesses in that sector. This includes innovation, having to stand out and be creative. A good example we went over in the course is Tesla. They came up with an offensive strategy by starting the whole electric vehicles trend, which then other companies had to go on the defensive to stay competitive in the ever-growing car industry and develop electric vehicles of their own. Another example is a service called Xbox Game Pass which provides players through a subscription, access to a lot of games without having to buy the games. Instantly PlayStation went on the defensive and created a very similar service seeing how successful the Xbox Game Pass was. Other examples include online movie services like Netflix and HBO, Amazon Prime etc. We also have Uber Eats and Door Dash. That's just to mention a few.

b) Because of COVID-19 a lot of things had to go digital which led many businesses to grab that opportunity. Quarantine happened and people were not allowed to leave their homes and obviously that provided opportunities for digital businesses. For example work and school had to be done remotely requiring lots of experimenting and testing to see what works best. Even now some companies kept to working remotely just because it's more practical and removes the commute to work. New healthcare systems needed

to be implemented to provide vaccines and track people who received them. Many systems had to implement the whole vaccine certificate system like for example airports wouldn't allow to travel without those certificates. There was a huge increase to online purchases since people couldn't leave their homes. I imagine some businesses had to move their assets to the cloud or some digital alternative. A lot of restrictions were created leading to create and implement new systems. With everything having to become digital it is easy to see how the adoption of digital technologies has sped up. Supply chain, analytics, AI, digital supply etc.

c) In short technical debt is basically trying to implement or create something by choosing the easiest, quickest, and cheapest method/approach instead of using a better approach that would take longer, resulting in something that isn't necessarily perfect and needs reworking and fixing later. Examples of this can be deadlines to pressure into releasing something without having enough time to work on it.

d) When something doesn't provide the value that was expected. Projects or transformations that need to be restarted or redone entirely. Focusing on the wrong sectors or even too little focus leading to underperformance. Even stuff that takes too long or requires too many resources, things that should have been implemented a long time ago. Also very important to be aware of the current situation business or cultural. Can even be hiring wrong people for the job having the wrong mindset. Bad communication between what is envisioned and what is being done.

e) Lights-out manufacturing is a methodology where manufacturing is fully automated removing the need for people, the place can even be totally dark but the machines still be working. This way companies can automate tasks without hiring new talent or human labor. The machines can be running even after hours or without anyone watching over them. Obviously this is an amazing idea for digital transformation.

Automating usually manual tasks without having to pay someone to do the work increases revenue and reduces labor costs.