IBE505 Final exam

1.

a) My solution would be to implement a digital tracking system. This solution should enable us to quickly identify packages for automatic tracking and sorting. Automating these processes will save time and make deliveries faster.
b) QR codes or RFID tags can be attached to each individual package. These can be read by sensors at each step of the journey, and the data written to a repository (central database) where consumers can look up their package and get tracking information. Sorting machines can look up the destination and route the packages to the correct destination.
c) As a CIO (chief information officer), my role is to have responsibility for the overall strategy and implementation of UPS' technology infrastructure.
d) For implementing the new system, I would probably have to hire new employees with the required technical skills. Since these new hires will lack organizational knowledge, I would pair them with existing employees so they can train each other. This way, the new employees will learn about the organization and the old employees will learn technical skills. This is called **cross-training**. Some skills may be required of all or most employees, these I would deliver through **in-house training classes**.
e) My solution would impact goal 9, industry, innovation and infrastructure, by making the industry more efficient.

2)

a) This could be solved using AR and VR technology. The lab in the central location would have cameras and devices to manipulate the objects that have been set up by the teacher in advance. The students can the view and manipulate the objects from their homes. While this can be done with regular screens and keyboard/mouse controls, in order to enhance the feeling of objects students should use VR-glasses/smart glasses and VR controls worn on the hands.
b) Students can wear smart glasses which monitor whatever the student is looking at. It will also monitor the students eyes to ensure that the student is actually wearing it and did not take it off to look at their phone, for example. This is however a quite invasive solution and would probably have significant legal and cultural barriers.
c) Both solutions would use AR/VR technology like smart glasses.
d) 4. Quality education: These solution would increase the quality of education by improving the experience and quality of remote learning.
   5. Gender equality: In some places, girls are prevented from going to school for economic or cultural/political/religious reasons. With remote learning solutions, these barriers can be bypassed at least to some extent.
   8. Decent work and economic growth: These are long-term benefits of increasing the availability of education.
   10. Reduced inequalities: In poor and rural areas, the local school may be lacking in skills or lab equipment. With remote learning technologies, students can benefit from teachers and equipment from anywhere in the world.

3)

a) I would implement telemedicine solutions. This would allow doctors to diagnose and treat patients remotely. This will relieve local hospitals and health centers, which are the most

likely to be understaffed. Since telemedicine solutions requires communication between many different kinds of devices, I will use an API-first strategy. This means I will develop an API to connect the technologies first. This API can then be used by the client applications, which can be developed using the minimal viable product (MVP) strategy.

b) I will use IoT devices to monitor the patient's health and administer tratment. Vital data such as blood pressure, temperature and blood sugar can be monitored this way, and medicines and even surgery can be administered remotely. I would also use cloud computing to store, process and analyze the data.

c) Some advantages by implementing this solution on the cloud is that it can be made available to all health care providers, and that the data is stored redundantly which means it is not likely to be lost. A disadvantage is security, since it is more exposed to data breaches than locally stored data.
The four different cloud solutions are:
Public cloud
Private cloud
Hybrid cloud
Multicloud

d) I would forge a public-private partnership with one or more private companies. These companies can provide the in initial funding and skills needed to move forward with the project.

e) 3. Good health and well-being: This will be improved through better access to health services and earlier diagnoses.
10. Reduced inequalities: Online access to health providers will reduce the differences in quality of care between different regions and between urban and rural areas.
17. Partnerships for the goals: The transformation requires partnerships between the health services and private companies which will work towards the same goals.

4)

a) A defensive strategy is a strategy of transformation which aims at defending the business from disruptors and competitors. An example is traditional car manufacturers, which started manufacturing electric cars as a defensive strategy.
An offensive strategy tries to disrupt an industry. An example is Tesla, which aims at disrupting the car industry by offering electric cars with driver-assisting technologies and OTA-updates.

b) Some responses to the COVID-19 pandemic that has sped up adoption of digital technologies are:
   i) Tracking apps. These connects to mobile devices nearby, to share information about infection status later.
   ii) Teleconferencing. Enables online face-to-face meetings and education. This reduces the risk of infections as workers and students can stay at home, and as a beneficial side-effect reduces commuting.
   iii) Remote patient data monitoring. General Electric has deployed IoT devices which can monitor the patient's health remotely, allowing them to stay at home.

c) Technical debt is the implied cost of choosing an easier solution now instead of choosing a better solution which takes longer to implement.

d) Examples of digital transformation failures are that the product does not achieve the expected business value, or that the project does not reach completion. Leading indicators of such a failure are lack of top-down support, inward focus versus industry sector trends, mismatch of planning vs doing and too much emphasis on technology vs cultural shifts.

e) Lights-out manufacturing is a manufacturing process that does not require a human to be on-site. It is driven by advances in IoT sensors and AI.