Week 3 Assignment solution: Physical ergonomics vs. virtual ergonomics

1. Major components of optical projections are........................................
   
   Answer: Centre of projection (CP), Projectors, Projection Plane (PP) & Principal Axes.

2. Projections can be broadly categorized as parallel projection and -----------
   
   Answer: Perspective projection.

3. Parallel projections are categorized as ____________
   
   Answer: Orthographic projection, Oblique projection & axonometric projection.

4. Which of the following is not a characteristic of perspective projection?
   
   Answer: Distance between Centre of projection (CP) and projection plane (PP) is infinite.

5. Projection Plane is parallel to one of the principal axis. This is the characteristic of -----------
   
   Answer: Orthographic projection.

6. In case of ________________________, parallel projectors are inclined to projection plane at an angle other than 90 degree and one of the principal axes is parallel to projection plane.
   
   Answer: Oblique projection.

7. What are the types of axonometric projection?
   
   Answer: Trimetric, Dimetric & Isometric.
8. What kind of axonometric projection is represented by this image?

*Answer:* Trimetric.

9. Depth lines of the projected image are converged at _______________ point

*Answer:* Vanishing.

10. In perspective projection, __________________ point is the eye of the observer at the viewing point.

*Answer:* Station.

11. Virtual Environment means_________________ environment

*Answer:* Computer Graphics.

12. Simulation is defined as creating similar environment, process, methods etc. It is categorized as ________________

*Answer:* Physical and virtual.

13. DHM is the _______________ tool for construction of 2D & 3D human model from anthropometric and biomechanical data for ergonomic analysis of virtual Human fit.

*Answer:* CAD.
14. _______________ has the potential to enable engineers to incorporate ergonomics principles earlier in the design process

   Answer: DHM.

15. Which of the following is not the advantage of using DHM software?

   Answer: Requirement of physical mock-up.

16. ‘DHM has the potential to evaluate the hazardous and inaccessible workplace’ - the statement is------------------

   Answer: Correct

17. Accommodating ______________ of user population for any particular product/facility is a challenging job to ergonomist.

   Answer: Varying anthropometry.

18. Distance between Centre of projection (CP) and projection plane (PP) is finite in case of

   Answer: Perspective.

19. Virtual reality is defined as 3D Computer graphics (CAD) environment where real human being can interact intuitively with that environment and he has the feeling of ---------------------- in that environment.

   Answer: Immersion.

20. DHM software does not help in ______________.

   Answer: Repeated trial and modification of physical products/mockups.

21. Digital human modeling is the process of creating ------------------------------- representation of human body form.

   Answer: Virtual.
22. ‘DHM facilitate repeated trial of man-machine interface by incurring extra time, material and cost’ - the statement is----------------------

   Answer: Misleading.

23. Which of the following statement is correct?

   Answer: DHM reduces the requirement of physical mock-up testing with real human.

24. ------------------------is defined as “a 2D or 3D graphical computer representation of the human body based on anthropometric measurements, link and joint structure, and movement characteristics

   Answer: DHM

25. Which of the following is not a DHM software?

   Answer: AnyMan.