1- c 2- b 3- d 4- c 5-

6- VPS or visual positioning system dependes on frames from camera so it will find it difficult to deal with outdoor environment conditions (for any reason like weather, shadows, occlusions of view by another object,etc.) also, VPS needs to store some reference images to compare what it is looking at with those (for example images of a whole area)
GPS can prepare data about the location (with a satisfied accuracy) but it has some error and can not excel 100% accurate. In addition, It relies on satleites, so it is not always accessible.

7. unlike current state-of-the-art scanning systems, Flash LIDAR captures the entire scene in a single-shot so it is fast like a snapshot, and with a single laser pulse illuminates the environment in front of the car and an array of photodetectors.
You can think of a flash lidar as a single solid-state lidar chip that acts as both the camera and the flash needed to capture a 3D image.To capture, every pixel on the chip fires light, which floods the field of view. When the light bounces off of objects and returns to the sensor, every pixel also captures 3D data.

8. it gets more 3D points without noises so it will help to make precise 3D model of objects and environment and also due to being single-shot, we can save time.
Moreover, The absence of moving parts means less mass and volume, which allows a better integration to a mission and reduces its complexity and sensitivity to vibrations or target motions.

9. 2D has 2 true axis of movement/control, something that's strictly limited to a plane
3D has 3 true and relatively equal axis of movement/control and give us a feeling that there is 100% depth from every angle that camera follows.

2.5D has a 3rd axis of very limited utility so it feels like it has some kind of depth.

10. it deponds on the our target, the environment (background) and goals, for example if we can distinguish our object from complex background , if our obj has a specific attribute we can detect it easily but when it comes to complex objects that are similar to background we benefits from depth info. similarly, if we want to classify objects and our objects are moving (for example some rounding objects) and our desired attribute can be hide during its moving, Full-3D is beneficial.

11. Spatial resolution is the detail in pixels of an image. High spatial resolution means more detail and a smaller grid cell size. Whereas, lower spatial resolution means less detail and larger pixel size.
Radiometric resolution refers to how much information is in a pixel and is expressed in units of bits. A single bit of information represents a binary decision of yes or no, with a mathematical value of 1 or 0. so we can consider them independent.

12. Feature Matching is based on a feature detection step which returns a set of so called feature points.The second step is the matching. The association of feature points extracted from two different images. Most feature matching methods are scale and rotation invariant and are robust for changes in illuminations (e.g caused by shadow or different contrast). Thus these methods can be applied to image sequences but are more often used to align image pairs captured from different views or with different devices.The disadvantage of Feature Matching methods is the difficulty of defining where the feature matches are spawn and that the feature pair are very sparse. In addition the subpixel accuracy of matching approaches are very limited as most detector are fine-graded to integer positions. Optical flow (feature tracking) methods in contrast rely on the minimization of the brightness constancy and additional constrain e.g. smoothness etc. Thus they derive motion vector based on spatial and temporal image gradients of a

sequence of consecutive frames. Thus they are more suited image sequences rather than image pairs that are captured from very different view points

13. Sift solves the image rotation, affine transformations, intensity, and viewpoint change in matching] features. ORB does not compute the orientation and is rotation variant. a rotation matrix is computed using the orientation.

14. the same for 12

15. DGPS methods are commonly known as augmentation schemes and are generally divided into two types depending upon the size of the geographic area covered by the system. These DGPS augmentation systems are (1) wide area augmentation systems (WAAS) and (2) local area augmentation systems (LAAS)

16. A depth map is the key to creating the effect artificially, by mapping out which objects are nearer and further from the camera. There are two main approaches: Monocular (single camera) and Stereo (two cameras). matching two images from two rectified cameras shows a large displacement to close objects, while far away objects show less displacement. Monocular depth is more reliant on other useful information such as patterns, lighting, and object recognition. Although these details can yield useful information for depth perception, the single camera approach holds many shortcomings as it is mostly reliant on memory. As monocular algorithms do not use real depth information, they tend to cluster objects to different depths without regard to the depth difference between the objects. This may cause the main object to appear to stay at a consistent depth, even when moving back and forth.

17. as an machine vision engineer in the sophisticated issues I prefer to do Geometrical depth estomation because of rebustness to environmental noises

and simpilicity (but efficient) , also it will consume less resources so it can be deployed on edge based boards .