UNIT 4

1.The problem of determining a point's 3D position from a set of corresponding image locations and known camera positions is ___.
a. Triangulation
b. Factorization
c. Bundle adjustment
d. Orthographic projection

ans : a

2.The_____ refers to the fact that motion estimation is highly ambiguous when the observation window is very small.
a. panoptic segmentation
b. aperture problem
c. geometric reasoning
d. calibration error
ANS : B

3.One of the useful property of Fourier transforms is that convolution in the spatial domain corresponds to ____ in the Fourier domain
a. addition
b. subtraction
c. multiplication
b. division
ANS : C

4.Bundle adjustment is now the standard method of choice for most ___ problems and is commonly applied to problems with hundreds of weakly calibrated images and tens of thousands of points.
a. motion-from-structure
b. structure-from-motion
c. motion-from-motion
d.structure-from-structure
ANS : B

5.Which of the following can also be computed on the basis of line matches alone?
a. Trifocal Tensor
b. Tensor Flow
c. Stack overflow
d. both Tensor Flow and Stack overflow
ANS : A

6.____ technique can be used to estimate a series of rotation matrices and focal lengths, which can be chained together to create large panoramas.
a. Bundle adjustment
b. Parallax removal
c. Gap closing
d. Composting
ANS : B

7.Before we can register and align images, we need mathematical relationships that _____ from one image to another.
a. align an image
b. map pixel coordinates
c. rotate pixel
d. compare image
ANS : B

8.In _____, images are translated, optionally rotated and scaled.
a. panography
b. cryptography
c. photography
d. cartography
ANS : A

9.An alternative to using homography or 3D motions to align images is to first warp the images into ___ and then use a pure translational model to align them.
a. Spherical coordinates
b. Cylindrical coordinates
c. Planar coordinates
d. Vector coordinates
ANS : B

10.If the user takes images in sequence so that each image overlaps its predecessor and also specifies the first and last images to be stitched, bundle adjustment combined with the process of _____ can be used to automatically assemble a panorama.
a. topology inference
b. mean difference
c. sum of squared difference
d. change in image
ANS : A

11.The fundamental matrix is given by _____.

12.Most modern cameras have _____ pixels and an image center near the _____ of the image
a. round, center
b. rectangle, corner
c. square, middle
d. round, edge

ANS : A

13.Which one of the following is the point of intersection of the line joining the camera centers with the image plane?
a. Epipole
b. Axis
c. Point of projection
d. Point at infinity

ans :a

14.Fourier-based alignment relies on the fact that the Fourier transform of a shifted signal has the same magnitude as the original signal, but a _____ phase
a. exponentially varying
b. linearly varying
c. unvarying
d. constant

ans: b

15.Structure from motion is a _____in structure and motion.
a. Bipartite problem
b. Graph Coloring Problem
c. Travelling salesman problem
d. Normalized Cut
ans : a

16.Triangulation is the converse of _____ problem.
a. Direct Linear Transform
b. Pose Estimation
c. 2D Motion Estimation
d. Rigid Transform
ans: b

1.	Approaches to image processing that work directly on the pixels of incoming image work in _____ a) Spatial domain b) Inverse transformation c) Transform domain d) None of the Mentioned Answer: a
2.	_____ is the process of moving a filter mask over the image and computing the sum of products at each location. a) Nonlinear spatial filtering b) Convolution c) Correlation d) Linear spatial filtering Answer: c
3.	digital image processing is based on the concepts of maths, ____. 1. probabilistic formulation 2. human intuition, 3. analysis 4. all of the above

	Show Answer 4. all of the above
4.	Which of the following plane is used for 2D transformations? a) Three-dimensional plane b) Two-dimensional plane c) One-dimensional plane d) Four-dimensional Plane Answer: b
5.	In which of the following projection, the object size differs when look from different distances? a) Parallel Projection b) Cavalier Projection c) Perspective projection d) Cabinet Projection Answer: c
6.	Fundamental matrix tells how pixels (points) in each image are related to epipolar lines in the other image in a. Calibrated Camera images b. Uncalibrated Camera images c. Both a and b d. None of the above Ans : a
7.	In perspective projection, what happens to the size of the image when the object moves far from the projection plane? a) There is no change in size of image b) Size of image gets bigger c) Size of image gets smaller d) There is no image in perspective projection Answer: c
8.	In perspective projection, at which of the following point the eyes of the observer are located? a) Vanishing Point b) Perspective Point c) Observer Point d) Station Point Answer: d

9.	How many axis intersects with the projection plane in the three-point perspective projection? a) One b) Two c) Three d) No axis intersects the projection plane Answer: c
10.	Which of the following operation can be applied on a 3 D object to move it along any axis from its original position? a) Translation b) Scaling c) Rotation d) Shearing Answer: a
11.	What does composite transformations means? a) Transformations that can be done in sequence b) Transformations that cannot be done in sequence c) Transformations that can be done simultaneously d) Transformations that cannot be done simultaneously Answer: a
12.	Essential matrix describes the geometric relationship between corresponding points of a stereo pairs in a. Calibrated Camera images b. Uncalibrated Camera images c. Both a and b d. None of the above Ans : b
13.	What projection is a single pictorial drawing, representing all the three sides of an object such that they have a tendency to converge at a point? a) Perspective projection b) Isomeric projection c) Axonometric projection d) Oblique projection Answer: a

14.	**_____ are the applications of an object recognition** a. Driverless cars b. Medical image processing c. Monitoring and surveillance d. All of the above Ans :d
15.	**_____ are the difficulties in object recognition under varied circumstances** Lighting, rotation, positioning Mirroring, occlusion, scale Both a and b None of the above ANS:C
16.	Essential and fundamental matrices are 3x3 matrices that a. Encode the epipolar geometry of two views b. Compute homography c. Decode homogeneous coordinates d. None of the above ANS : a

UNIT 5

1.	Parametric motion models are possible using a. 2D transforms b. Planar perspective models c. 3D camera rotations d. All of the above ANS : D
2.	Gap or an overlap occurs while creating large panoramas because of a. Accumulated errors b. Missing content c. Non-overlapping patches d. None of the above Ans : a
3.	Gap closing can be achieved by a. Distributing the error evenly across the whole sequence b. Pure panning motion c. Update the estimated focal length based on the amount of misregistration. d. All of the above Ans : d
4.	Issues to be considered in video stitching are a. Independent motion and Camera zoom b. Focus to visualize dynamic events c. Both a and b d. None of the above

	Ans : c
5.	17.For converting a projective reconstruction into a metric one, _____ techniques have been developed. a. Orthographic Projection b. Projection Matrix c. Self-calibration d. Epipolar Ans:
6.	The normal vector perpendicular to the line can be expressed as a function of two angles using _____. a. Spherical coordinates b. Cylindrical coordinates c. Planar coordinates d. Vector coordinates Ans : a
7.	Professional panoramic photographers often use pan-tilt heads that make it easy to control the tilt and to stop at specific _____in the rotation angle. a. error b. bias c. weight d. detents ANS : d
8.	Radial distortion can be estimated _____. a. ahead of time b. Just in time c. using alignment d. by matching pixels Ans : d
9.	Cylindrical image stitching algorithms are used when a. Camera is known to be level b. Rotating around its vertical axis c. Both a and b d. Camera not in level. Ans: C
10.	Globally consistent set of alignment parameters that minimize the mis-registration between all pairs of images is known as a. Overall alignment b. Global alignment c. Local alignment d. Camera alignment ANs : b
11.	_____is performed to reduce double images and blurring due to local mis-registrations. a. Parallax removal b. Noise removal c. Frame removal d. Blur removal Ans : a
12.	The process of simultaneously adjusting pose parameters for a large collection of overlapping images is called _____ a. Image alignment b. Bundle Adjustment

	c. Bundle Alignment d. Image adjustment Ans : b
13.	Stitched image looks blurry or ghosted due to a. Unmodeled radial distortion b. 3D parallax (failure to rotate the camera around its optical center) c. Small scene and large-scale scene motions in and out of pictures. d. All of the above. Ans : d
14.	Radial distortion can be estimated a. plumb-line method b. mosaic based approaches c. Anti distortion d. Both a and b Ans : d
15.	Correction for parallax in the overlap areas can be accomplished using a. Multi-perspective plane sweep (MPPS) algorithm b. SIFT c. MOPS d. SVD Ans : a
16.	Compositing surface can be a. Fat b. Cylindrical or spherical c. View (reference image) d. All of the above Ans : d
17.	Use of stereographic projections looking down at the ground (in an outdoor scene) is known as a. Little planet renderings b. World view c. Global rendering d. Galaxy rendering Ans : a
18.	usual choice for compositing larger panoramas is to use a. Spherical Projection b. Cylindrical projection c. Both a & b d. None of the above ANs : c
19.	Process of determining which part of the scene will be centered in the final view is a. Scene selection b. Center selection c. View selection d. Axis selection Ans : c
20.	Create a final composite by taking Weighted average value at each pixel is known as a. Feathering b. Averaging c. Composting d. Rendering Ans. : a

PART B

UNIT IV

1. Examine the process involved in two frame structure from motion.
2. Elaborate the process of triangulation.
3. Assess the role of constraints in SFM.
4. Illustrate the significance of bundle adjustment in structure from motion systems.
5. Demonstrate the process optimization achieved in hierarchical motion estimation with example.
6. Demonstrate how sparsity can be exploited for image alignment.
7. Discuss incremental refinement in SFM
8. Explain self-calibration in SFM.

UNIT V

1. Analyse the role of rotational panoramas in image stitching with a neat example.
2. Discuss the applications of planar perspective motion.
3. Explain 'Compositing' Approaches with example.
4. Examine the parallax removal approaches in detail.
5. Discuss the applications of gap closing techniques.
6. People prefer that the final stitched image is "upright" rather than twisted or tilted. Justify.
7. Compare direct and feature based alignment.
8. Analyze the role of cylindrical panoramas in image stitching with example.