Write short notes on:

1. Pain pathways:
   a) How is sensation carried from big toe to thalamus?
   b) Pain regulation mechanism
   c) Enumerate surgical methods to control pain.

2. Factors affecting surgical site infection in Neurosurgery and methods to minimize it prophylactically.

3. Role of gene therapy in glioma and, its limitations & success.

4. Factors affecting progression free survival in glioma.

5. Role of Gamma Knife in:
   a) Pituitary adenoma
   b) Cerebral AVM
   c) Functional Neurosurgery

6. a) Enumerate various spine stabilization implants for cervical spine surgery;
   b) Its selection criteria &
   c) Limitations of implants.

7. a) Outline various treatment options for AVM of brain;
   b) Classification of embolising materials; &
   c) Advantages and disadvantages of each.

8. Indications of brain vascular bypass surgery and techniques related to it with suitable illustration.

9. Role of microdialysis in neurosurgical illness, its major benefits and limitation.

10. A 45 years old patient had decompressive craniectomy for MCA infarction.
    a) When will one go for cranioplasty
    b) Various options for cranioplasty.