

To be filled by the candidate)

Booklet S. No. _____

Roll No. (In figures) _____

Roll No. (In words) _____

Name of the Candidate : _____

Father's Name : _____

Center of Examination : _____

Total No. of Questions : 50

Paper Code-2619

**Name of Examination- Senior Resident/Specialist Tutor Entrance 2026
Specialty- Radiotherapy**

Time Allowed : 90 Minutes

Maximum Marks : 200

IMPORTANT NOTE:

- (i) OMR Answer Sheet will be supplied by the Examination Centre Superintendent for answering the questions.
- (ii) Use **Blue/Black Ink/ Ball Pen only**, to darken the appropriate circle in the OMR Answer Sheet.
- (iii) Darken one circle deeply for each question in the OMR Answer Sheet, as faintly darkened circle might be rejected by the Optical Scanner.
- (iv) Darkening of more than one circle shall be rejected by the scanner. **Over-writing, cutting, erasing or use of White Fluid is not allowed.**
- (v) Before dealing with the question paper, fill-up the required information with Blue/Black Ball Pen correctly both in the Question Booklet and in the OMR Answer Sheet.
- (vi) Do not fold the OMR Answer Sheet nor put any mark here and there to avoid rejection by the Optical Scanner.
- (vii) Write Roll. No. carefully on the OMR Answer Sheet and darken the appropriate circle properly.
- (viii) **Each question carries Four Marks while 1 mark shall be deducted for each incorrect response.**
- (ix) **Use of Calculator is not allowed.**
- (x) **No over-writing, cutting, erasing or use of white fluid is allowed.**
- (xi) Rough work be done on the sheet(s) at the end.
- (xii) **MOBILE TELEPHONES (EVEN ON SWITCH-OFF MODE) AND SUCH OTHER ELECTRONIC DEVICES ARE NOT ALLOWED INSIDE THE EXAMINATION HALL.**
- (xiii) The question paper-booklet will be retained by the candidate after the entrance test is over.

1. Which of the following is the most common presenting symptom of nasopharyngeal cancer?

- (a) Nasal bleeding
- (b) Cervical mass
- (c) Dry eyes
- (d) Ophthalmoplegia

Answer: b

2. Which of the following is not correct for the classification of risk factors in oral cavity cancers?

- (a) Perineural invasion (+)-minor risk
- (b) Surgical margin (+)-major risk
- (c) T3 disease-minor risk
- (d) Extracapsular extension-minor risk

Answer: d

3. Which of the following monoclonal antibody has been approved for the management of locally advanced, recurrent, or metastatic head and neck SCC?

- (a) Bevacizumab
- (b) Panitumumab
- (c) Cetuximab
- (d) Trastuzumab

Answer: c

4. Which of the following oncoproteins are associated with carcinoma oropharynx?

- (a) E3, E4
- (b) E6, E7
- (c) E16, E18
- (d) F1, F3

Answer: b

5. Which of the following study clearly demonstrated the benefit of hyper fractionated radiation therapy in carcinoma oropharynx?

- (a) RTOG 7303
- (b) EORTC 22791

(c) RTOG 1903

(d) INT 12405

Answer: b

6. Ideal time for post treatment PET-CT in case of cancer of Head and Neck?

- (a) 1 to 2 weeks
- (b) 8 to 12 weeks
- (c) 4 to 7 weeks
- (d) 2 to 4 weeks

Answer: b

7. Otalgia in oropharyngeal carcinoma is mediated by which cranial nerve?

- (a) IX
- (b) II
- (c) IV
- (d) XI

Answer: a

8. According to RTOG 9003 true statement.

- a. Split course accelerated radiotherapy showed improved OS, DFS, and LRC.
- b. Concomitant boost and hyper fractionated RT showed improvement in LRC, DFS.
- c. There was no increase in toxicity profile with altered RT fractionation.
- d. Significant improvement in OAS with concomitant boost and hyper fractionation.

Answer: b

9. Which of the following subsites in hypopharyngeal cancer carry worse prognosis?

- (a) Posterior pharyngeal wall
- (b) Post cricoid region
- (c) Piriform sinus
- (d) Base of the tongue

Answer: b

10. What is the lymph node involvement risk in T2N0M0 glottic cancer at presentation?

- (a) 0%
- (b) <2%
- (c) 10%
- (d) 15%

Answer: b

11. Which of the following systems is used for esthesioneuroblastoma staging?

- (a) Chang staging
- (b) Kadish staging
- (c) Ann-Arbor staging
- (d) Shimada staging

Answer: b

12. Which of the following is an indication for radiotherapy in malignant salivary gland tumors?

- (a) Stage III disease
- (b) High-grade disease
- (c) Recurrent tumor
- (d) All of the above

Answer: d

13. Which of the following is an indication of radioactive iodine (RAI) after surgery?

- I. Thyroglobulin >1 ng/ml
 - II. RAI thyroid scintigraphy (+)
 - III. Metastatic disease
- (a) Only II
 - (b) I and II
 - (c) I, II, and III
 - (d) I and III

Answer: c

14. Which of the following anatomical markers is not used in the Gregoire guidelines of elective neck nodal levels?

- (a) Hyoid bone
- (b) Sternocleidomastoid muscle
- (c) Thyroid cartilage
- (d) Transverse cervical vessels

Answer: c

15. What is the maximum dose tolerance of cochlea in head and neck radiotherapy?

- (a) <35 Gy
- (b) <50 Gy
- (c) <45 Gy
- (d) <60 Gy

Answer: a

16. Lymph nodes around common hepatic artery are defined as?

- (a) Station 5
- (b) Station 8
- (c) Station 6
- (d) Station 12

Answer: b

17. Regular consumption of processed meat and refined grains is associated with an increased risk of which of the following?

- (a) Larynx cancer
- (b) Colorectal cancer
- (c) Brain tumor
- (d) Oral cancer

Answer: b

18. Which study compare long course radiation treatment with short course radiation treatment in rectal cancer?

- (a) EORTC 22921
- (b) Polish rectal cancer group

(c)MRC CR07/NCIC C016

(d) Both a and b

Answer: b

19. In carcinoma rectum, superior border of AP-PA field of whole pelvic Radiotherapy during planning is usually kept at-

(a) 3cm below the primary tumor

(b)At the inferior aspect of the obturator foramina

(c)Both a and b

(d)L5/S1 Interspace

Answer: d

20. Which of the following photon-matter interactions causes the production of positrons and negatrons, each of which have 0.511-MeV energy?

(a) Coherent scattering

(b) Photoelectric effect

(c) Compton effect

(d) Pair production

Answer: d

21. Which of the following is not correct for HVL?

(a) It depends on the energy of incoming photons.

(b) It depends on the absorbent material.

(c) The unit of HVL is mm.

(d) The second HVL is thinner than the first HVL.

Answer: d

22. Which of the following accelerates electrons in a linear accelerator?

(a) Radio waves

(b) Microwaves

(c) Ultraviolet waves

(d) Gamma rays

Answer: b

23. Total dose and no. of fractions in QUAD-SHOT radiotherapy is

(a) 10Gy in 4 fractions

(b) 20Gy in 4 fractions

(c) 14Gy in 4 fractions

(d) 10Gy in 2 fractions

Answer: c

24. According to AAPM Task Group 76, real time tumor tracking or respiratory gating is warranted if magnitude of target motion in any direction is more than

(a) 2mm

(b) 5mm

(c) 4mm

(d) 1mm

Answer: b

25. Which of the following can be treated with SRS

(a) AVM

(b) Acoustic neuroma

(c) Pituitary tumor

(d) All of the above

Answer: d

26. The term 'step and shoot' or 'stop and shoot' is sometimes used to describe which RT delivery technique

(a) Helical tomotherapy

(b) Serial tomotherapy

(c) Segmental MLC- IMRT

(d) Dynamic MLC –IMRT

Answer: c

27. The typical average value of leakage dose from the multileaf collimator (MLC) relative to the primary dose is approximately:

- (a) 0.1%
- (b) 1%
- (c) 2%
- (d) 4%

Answer: c

28. Most common primary bone tumor of childhood is?

- a) Chondrosarcoma
- b) Osteosarcoma
- c) Ewing sarcoma
- d) Chordoma

Answer: b

29. which of the following best describes the commonly used treatment approach for high grade resectable osteosarcoma?

- a) Surgery f/b PORT
- b) Concomitant chemo-RT
- c) Neoadjuvant chemotherapy f/b surgery f/b adjuvant chemotherapy
- d) RT alone

Answer: c

30. Adequate dose of RT for a post-op case of Ewing sarcoma with gross residual disease?

- a) 45Gy
- b) 55.8Gy
- c) 59.4Gy
- d) 50.4Gy

Answer: b

31. The concept of “tailored field” in Ewing’s sarcoma was given by?

- a) EICESS 92 trial
- b) IESS trial

- c) POG 8346 trial
- d) CESS 86 trial

Answer: c

32. Most common site of STS (soft tissue sarcoma) ?

- a) Head and neck
- b) Retroperitoneum
- c) Lower extremity
- d) Upper extremity

Answer: c

33. First line therapy for unresectable GIST?

- a) Sunitinib
- b) Ripretinib
- c) Imatinib
- d) Cabozantinib

Answer: c

34. For treating soft tissue sarcoma in a post operative setting with positive margin what total dose would be used?

- a) 45-50Gy
- b) 50-60Gy
- c) 70-76Gy
- d) 66-68Gy

Answer: d

35. Preferred second line therapy for leiomyosarcoma?

- a) Trebectidin
- b) Pazopanib
- c) Eribulin
- d) Entrectinib

Answer: a

36. Absorbed dose at any point in matter depends on?

- a) Exposure rate at reference point
- b) Exposure rate at point of interest
- c) Conversion factor
- d) All of the above

Answer: d

37. Which of the following is not an absolute dosimeter?

- a) Free air ionization chamber
- b) Film dosimeter
- c) Fricke dosimeter
- d) Calorimeter

Answer: b

38. Image segmentation refers to:

- a) Dividing the image into segments of high spatial resolution
- b) Adjusting grid size to compute dose distribution in greater detail
- c) Slice by slice delineation of target and organ at risk
- d) Comparison of images from one study to another

Answer: c

39. Regarding radiation exposure dose limit, choose the incorrect pair:

- a) Annual effective dose limit for occupational exposure- 50mSv
- b) Annual effective dose limit, infrequent exposure for general public- 1mSv
- c) Monthly equivalent dose limit for embryo-fetus- 0.5mSv
- d) Annual equivalent dose limit for extremity- 500mSv

Answer: b

40. In a wedge pair technique, the optimum relationship between wedge angle θ and the hinge angle ϕ is:

- a) $\theta = 180^\circ - \phi/2$
- b) $\theta = 90^\circ - \phi/2$
- c) $\theta = (90^\circ - \phi)/2$
- d) $\theta = \phi/2$

Answer: b

41. Orthovoltage therapy is used to describe treatment with the X-rays produced at potentials ranging from:

- a) 40 to 50kV
- b) 50 to 150kV
- c) 150 to 500kV
- d) 500 to 1000kV

Answer: b

42. When an electron field abutted with a parallel photon field at the surface:

- a) Hot spot develops on the side of electron field
- b) Hot spot develops on the side of photon field
- c) Hot spot develops at the junction of both the fields
- d) Cold spot develops on the side of photon field

Answer: b

43. To make beam intensity uniform across the field, which of the following is used?

- a) Scattering foil
- b) Flattening filter
- c) Focusing coils
- d) Collimator

Answer: b

44. Which of the following can be used for prevention of oral mucositis?

- a) Benzylamine mouthwash
- b) Low level laser therapy
- c) Palifermin
- d) All of the above

Answer: d

45. A 52 yr old male k/c/o prostate cancer post-op. is on EBRT received 20 fractions of RT presented with complaints of diarrhea 5 episodes from 2 days, which of the following is not a treatment option for management?

- a) IV fluids

- b) Antibiotics
- c) Loperamide
- d) IV amifostine

Answer: d

46. In patients undergoing esophagectomy without induction chemotherapy, minimum no. lymph nodes to be resected are?

- a) 18
- b) 15
- c) 23
- d) 19

Answer: b

47. All of the following are risk factor for squamous cell carcinoma of esophagus, except?

- a) Caustic injury
- b) Cholecystectomy
- c) Radiation
- d) HPV

Answer: b

48. As per ABS guideline, which of the following is not considered as “good candidate” for brachytherapy in esophageal carcinoma?

- a) Primary tumor ≤ 10 cm
- b) Tumor with extraesophageal extension
- c) Thoracic esophagus location
- d) No regional lymphadenopathy

Answer: b

49. In a case of cancer cervix, post op, RT alone recommendation by Sedlis criteria include all except:

- a) LVSI
- b) Tumor size ≥ 4 cm
- c) Deep stromal invasion
- d) Positive Lymph Node

Answer: d

50. In small cell neuroendocrine cervical cancer, if tumor size > 4 cm then treatment recommended is

- a) NACT f/b interval hysterectomy f/b adjuvant RT or CTRT
- b) Radical hysterectomy f/b CTRT
- c) NACT f/b CTRT
- d) None of the above

Answer: a

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