

# 076/2018

Question Booklet  
Alpha Code

A

Question Booklet  
Serial Number

Total No. of Questions: 100

Maximum : 100 Marks

Time : 75 Minutes

## INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet alpha code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is un-numbered, please get it replaced by new question booklet with same alpha code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the question booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball-Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

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**076/2018**

Maximum : 100 Marks

Time : 1 hour and 15 minutes

1. The Directive Principles of State Policy encoded in Indian Constitution was borrowed from \_\_\_\_\_ Constitution.  
(A) Irish (B) British  
(C) Germany (D) American
2. Article-23 of Indian Constitution refers to  
(A) abolition of untouchability (B) prohibition of forced labour  
(C) abolition of child labour (D) compulsory primary education
3. Indian Constitution was amended for the first time in  
(A) 1950 (B) 1951  
(C) 1952 (D) 1953
4. In 2001 Valmiki Ambedkar Awas Yojana was started  
(A) to provide homes for ST communities in the rural areas.  
(B) to provide homes for SC communities in the urban areas.  
(C) to improve the circumstances of the slum inhabitants.  
(D) to rehabilitate the beggars in India.
5. Rural Landless Employment Guarantee Programme was launched by  
(A) Narendra Modi (B) Manmohan Singh  
(C) Narasimha Rao (D) Indira Gandhi
6. Where did Chavara Kuriakose Elias Achan established first press in Kerala ?  
(A) Vazhakkunnath (B) Mannanam  
(C) Pulinkunnu (D) Edathuruthy
7. Who wrote the book *Arul Nool* ?  
(A) Thycaud Ayya (B) Chattampi Swamikal  
(C) Vaikunta Swamikal (D) Ayyankali
8. Sadhujana Paripalana Sangham was founded in  
(A) 1902 (B) 1904  
(C) 1906 (D) 1907
9. Vakkom Abdul Khadar Moulavi published *Al Islam* in \_\_\_\_\_ language.  
(A) Malayalam (B) Arabic  
(C) Arabimalayalam (D) English

A

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**076/2018**  
**[P.T.O.]**

10. Who was the first editor of *Swadeshabhimani* weekly ?  
 (A) C.P. Govinda Pillai (B) Ramakrishna Pillai  
 (C) Vakkom Moulavi (D) Narayana Pillai
11. *Velakkaran* was published by  
 (A) Ayyankali (B) Vagbhatanandan  
 (C) K. Kelappan (D) Sahodaran Ayyappan
12. Nair Service Society's first school in Kerala was started at  
 (A) Karukachal (B) Changanassery  
 (C) Perunna (D) Meenchanda
13. Kumaragurudevan founded Prathyaksha Raksha Daiva Sabha at  
 (A) Pathanamthitta (B) Tiruvalla  
 (C) Eraviperoor (D) Chengannur
14. How many persons signed in the Malayali Memorial ?  
 (A) 1001 (B) 10038  
 (C) 10083 (D) 10101
15. Who among the following was not associated with Vaikom Satyagraha ?  
 (A) K. Kelappan (B) T.K. Madhavan  
 (C) Abdul Rahiman (D) A.K. Gopalan
16. N.Krishna Pillai accepts \_\_\_\_\_ as his ideal.  
 (A) Henrik Ibsen (B) Edward Rose  
 (C) Tom Taylor (D) W.B. Bernard
17. Literary criticism on modern lines in Malayalam was started by  
 (A) P.K. Narayana Pillai (B) M.P. Paul  
 (C) A.R. Raja Raja Varma (D) Kuttikrishna Marar
18. Which among the following districts became the first fully electrified district of India ?  
 (A) Thiruvananthapuram (B) Palakkad  
 (C) Alappuzha (D) Bangalore
19. \_\_\_\_\_ won the Best Picture award in the 89<sup>th</sup> Academy Awards.  
 (A) Moonlight (B) La La Land  
 (C) Hacksaw Ridge (D) The Salesman
20. Arya Pallam worked for reforms among  
 (A) Pulaya women (B) Tiyya women  
 (C) Nair women (D) Namboodiri women

21. T2 sequences use  
 (A) Longer TR and longer TE (B) Shorter TR and longer TE  
 (C) Longer TR and shorter TE (D) Shorter TR and shorter TE
22. Echo planar imaging forms echoes using  
 (A) Successive 90-degree pulses (B) Successive alternating 90-degree pulses  
 (C) Successive 180 degree pulses (D) Successive alternating gradients
23. Lingula of lung is best seen in which X-ray view ?  
 (A) Lordotic (B) Apical  
 (C) Left lateral decubitus (D) Right lateral decubitus
24. Most signal in K space is present  
 (A) in the centre (B) in the periphery  
 (C) along the frequency encoding axis (D) along gradient encoding axis
25. In order to decrease dose in large patients  
 (A) decrease kV and improve image noise  
 (B) increase kV and improve image noise  
 (C) increase in kV and improve in contrast  
 (D) decrease in kV and improve in contrast
26. CT density of water in HU :  
 (A) 0 (B) 70  
 (C) 1000 (D) - 30
27. Strikers view is used for :  
 (A) Shoulder (B) Patella  
 (C) Cervicothoracic junction (D) None of the above
28. MRI full form is  
 (A) Magnetic Resonance Imaging (B) Multiple Resonance Imaging  
 (C) Magnetic Reformatted Imaging (D) Magnetizing Radiological Imaging
29. Contrast used in IVU study  
 (A) Barium sulphate (B) Magnavist  
 (C) Ultravist (D) Carbon dioxide

30. MRI was first demonstrated by :
- (A) Roentgen (B) Peterson  
(C) Honsefield (D) Lauterber
31. In X-ray imaging, noise is determined by
- (A) Energy of X-rays hitting the detector  
(B) Number of X-rays hitting the detector  
(C) Tissue contrast  
(D) Amount of scatter hitting the detector
32. Which of the following numbers reported by the scanner best reflects the total amount of radiation delivered to the patient ?
- (A) Dose (B) CT Dose Index (CTDI)  
(C) Pitch (D) Dose-Length Product (DLP)
33. The following term refers to a measure designed to reflect stochastic risk from radiation
- (A) Dose (B) CT Dose Index (CTDI)  
(C) Average dose (D) Effective dose
34. Automated exposure compensation uses the topogram image to determine
- (A) Tube current (mA) (B) Pitch  
(C) Reconstruction filter (D) Bowtie filter
35. Iodine is a good CT contrast agent because
- (A) We can achieve very high concentrations in target organs.  
(B) The k-edge (33 keV) is much lower than X-ray energies produced by a 120 kV tube.  
(C) The k-edge (33 keV) is near the average diagnostic X-ray energy produced by a 120 kV tube.  
(D) It simulates the attenuation of bone.
36. Missile effects are shown by
- (A) Metallic objects (B) Ferromagnetic objects  
(C) Iron rod (D) All of the above
37. PACS stands for
- (A) Picture Archiving and Communicating System  
(B) Picture Analogue and Computer System  
(C) Positive Analogue Computer System  
(D) Positive Anode Clustering System

38. All the statements regarding shoulder radiography is true, except :
- (A) In AP view with neutral rotation both greater and lesser tuberosities are super imposed.
  - (B) In Grasheys projection there is more overlap of gleniod than AP projection.
  - (C) AP oblique view rotate the body 35-45 degree.
  - (D) In Y view humeral head should super impose over the base of Y if not dislocated.
39. Real time imaging modality is
- (A) CT
  - (B) MRI
  - (C) USG
  - (D) PET
40. Pattern of blood flow is examined in USG by
- (A) Elastography
  - (B) Doppler mode
  - (C) Panoremic view
  - (D) Gradient
41. Flushing, Nausea in context of contrast reaction in radiological examination is
- (A) Minor reaction
  - (B) Intermediate reaction
  - (C) Severe reaction
  - (D) None of the above
42. In Film processing – fixing, all are true, except :
- (A) Made of hypo/ammonium thiosulphate
  - (B) Preservative for developer and fixer is same
  - (C) Hardening agent harden and shrinks gelatin in the film emulsion to prevent its reduction
  - (D) Acidifier neutralizes alkaline developer
43. TLD false statement is
- (A) Active radiation detection device.
  - (B) Disc are made of calcium  $SO_4$ .
  - (C) Lower filter is kept open.
  - (D) Measures doses between 0.01-10.4 mGy.
44. Regarding dark room false statement is
- (A) White/light colour paint on walls
  - (B) Lead equivalent of 2 mm in walls
  - (C) Ideal flooring with ceramic tile
  - (D) For safe light, bulb of 50 W is used

45. Element proved satisfactory for use as IV radiological contrast medium is  
(A) Barium (B) Iodine  
(C) Manganese (D) Iron
46. In lateral view chest X-ray  
(A) Left hemidiaphragm lower than right  
(B) Right hemidiaphragm lower than left  
(C) Right dome is fully traceable  
(D) Dome closer to film is lower
47. Unit of power is  
(A) watt (B) volt  
(C) ampere (D) tesla
48. X-ray was discovered by  
(A) Honsefield (B) Mansfield  
(C) Roentgen (D) Lauterbur
49. X-ray tube is made of  
(A) Pyrex glass (B) Plaster  
(C) Iron (D) Platinum
50. Negative terminal of X-ray is called  
(A) Cathode (B) Anode  
(C) Filter (D) Window
51. The region in the anode that is bombarded by electrons from cathode in X-ray tube is  
(A) Target (B) Filter  
(C) Focal spot (D) Filament
52. KVP for high KV chest X-ray  
(A) 60 (B) 90  
(C) 300 (D) 150
53. Maximum permissible radiation in a pregnancy  
(A) 0.1 msv (B) 1 msv  
(C) 10 msv (D) 100 msv

54. The purpose of rotating anode is to spread the  
(A) Radiation (B) Heat  
(C) Electrons (D) Protons
55. Left hilum is  
(A) Higher level than right (B) Lower level than right  
(C) Denser than right (D) Lucent than right
56. Most widely used transduces material in USG is  
(A) Barium sulphate (B) Lead zirconate titanate  
(C) Lanthanum sulphide (D) Gadolinium oxide
57. Slip ring technology is used in  
(A) CT (B) MRI  
(C) USG (D) SPECT
58. Step absent in automatic processing  
(A) Washing (B) Drying  
(C) Rinsing (D) Fixing
59. Low KVP is used in  
(A) Barium enema (B) Mammography  
(C) DSA (D) CT angiography
60. PD in MRI stands for  
(A) Proton density (B) Peripheral density  
(C) Proton dosimeter (D) Proton dimension
61. BMFT contraindicated in  
(A) Large bowel obstruction (B) Small bowel obstruction  
(C) Ulcerative colitis (D) Crohn's disease
62. MR spectroscopy details on the tissue  
(A) Blood flow (B) Perfusion  
(C) Biochemistry (D) Anatomy

63. The best view for the sphenoid sinus is  
 (A) Caldwell view (B) Waters view  
 (C) Basal view (D) Lateral view
64. SNR in MRI is increased by improving  
 (A) Resolution (B) Bandwidth  
 (C) Acquisition time (D) Gradient strength
65. Collimation results in  
 (A) Increased radiation exposure to the patient  
 (B) Increased scatter within the patient  
 (C) Improved tissue contrast  
 (D) Improved quantum mottle
66. The most important physical process responsible for tissue contrast in CT imaging is  
 (A) Coherent scatter (B) Photoelectric absorption  
 (C) Incoherent scatter (D) Characteristic X-ray production
67. The major technical challenge in cardiac CT is  
 (A) Spatial resolution (B) Temporal resolution  
 (C) Contrast resolution (D) Three-dimensional reconstruction
68. In X-ray imaging, noise is determined by  
 (A) Energy of X-rays hitting the detector  
 (B) Number of X-rays hitting the detector  
 (C) Tissue contrast  
 (D) Amount of scatter hitting the detector
69. Tissue contrast is generated by what type of interaction ?  
 (A) Rayleigh scatter (B) Compton scatter  
 (C) Photoelectric effect (D) Overall attenuation
70. False statement regarding patellar views :  
 (A) In Hughston method patient is prone with 55 degree knee flexion.  
 (B) Settegast is prone with 90 degree flexion.  
 (C) Standard sunrise view is better than mountain view to demonstrate patellar subluxation.  
 (D) Vertical fracture are best identified in sunrise view.

71. False statement regarding Film processing
- (A) In a developing solution hydroquinone act faster than phenindion.
  - (B) Preservatives in a developing solution prevent both internal and external oxidation.
  - (C) Sodium carbonate and sodium hydroxide are accelerators.
  - (D) In manual processing film remains for 3-5 minute depending on temperature of solution.
72. X-ray artefacts false is
- (A) Suppression of grid lining by moving grids high line rates
  - (B) Plexi glass used for positioning causes attenuating difference in the image
  - (C) Latent image in CR is due to incomplete erasure of previous image
  - (D) Back scatter through the back of detectors fixed by less shielding attached to back of detectors
73. True in silver recovery
- (A) Used fixer solution contains high concentration of silver
  - (B) Metallic replacement is in expensive
  - (C) Electrolytic method yields pure silver
  - (D) All of the above
74. Regarding radiation safety false statement is
- (A) larger the dose shorter will be the latent period.
  - (B) reducing exposure time by one half reduces the dose received by one half.
  - (C) transparent plates of thick plastics can be used for shielding beta particles.
  - (D) absorbed dose 1 Gy is equal to 100 J of absorbed energy / KG of matter.
75. Maximum patient radiation is seen in
- (A) CT abdomen
  - (B) CT chest
  - (C) Barium enema
  - (D) PET CT
76. Barium is used in diagnostic radiology – False statement is
- (A) Low atomic number
  - (B) Inert
  - (C) Non-toxic
  - (D) Non-absorbable
77. DSA stands for
- (A) Digital Substraction Angiography
  - (B) Direct Substraction Angiography
  - (C) Dual Substraction Angiography
  - (D) Direct Substitution Angiography

78. 10 day rule is applicable in  
(A) MRI (B) USG  
(C) HSG (D) Doppler
79. ALARA is used in the context of  
(A) MRI safety (B) Radiation safety  
(C) USG safety (D) None of the above
80. Double sided film is used in  
(A) CT (B) MRI  
(C) CR (D) Conventional
81. Used to decrease scattered radiation  
(A) Grid (B) Air gap technique  
(C) Both (D) None
82. Centering in Chest PA is at which spinous process :  
(A) T7 (B) T6  
(C) T1 (D) T3
83. Percentage of barium used for BMFT is  
(A) 25 (B) 10  
(C) 50 (D) 20
84. Safe light is seen in  
(A) DARK room (B) CT room  
(C) MRI room (D) DSA room
85. View for petrous bone is  
(A) Waters (B) Caldwell  
(C) Towns (D) Stenvers
86. Organ most sensitive for radiation is  
(A) Testis (B) Kidney  
(C) Heart (D) Brain



94. Voltage of safe light is  
(A) 15 (B) 55  
(C) 75 (D) 115
95. Sensitivity speck is related to  
(A) USG (B) MRI  
(C) X-ray film (D) All of the above
96. The thickness of an intensifying screen has a significant effect on all, except :  
(A) Image contrast (B) Image blurring  
(C) Receptor sensitivity (D) Patient exposure
97. Unit of MRI is  
(A) Decibel (B) Hertz  
(C) Honsefield (D) Tesla
98. Developer solution contains  
(A) Sodium alum (B) Thiosulphate  
(C) Silver halide (D) Phenindione
99. All are radiation monitoring devices  
(A) Film badge (B) TLD  
(C) None (D) Both
100. HSG is done to assess  
(A) Ureters (B) Urethra  
(C) Uterus (D) Urachus

**SPACE FOR ROUGH WORK**

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