



Post Graduate Medical Diploma (Part-I)
Diploma in Medical Radiological Diagnosis (DMRD)
Paper-I
(Multiple Choice Questions)
MODEL PAPER

Signatures of Candidate

Roll No.

Total Marks: 100
Time Allowed: 2 hours

Instructions:

- i. Read the instructions on the MCQ Response Form carefully.
- ii. Attempt **all** questions.
- iii. Question Paper to be returned along with MCQ Response Form.
- iv. Candidates are strictly prohibited to give any identification mark except Roll No. & Signatures in the specified column only.

Q.1 Regarding X-ray production, which statement is correct:

- a) Filament current is the same as X-ray tube current.
- b) Kv is related to the filament current.
- c) Anode is usually made up of zinc and tungsten.
- d) Electron from the filament are focused on the patient with velocity of light.
- e) Anode angle is the angle between the plane of cathode filament and the plane of anode.

Q.2 In generator design, which is the best statement:

- a) Three phase generators have highest voltage ripple.
- b) Increased voltage ripple leads to lower patient radiation dose.
- c) Three phase generators give a lower tube output for a given tube current.
- d) Three phase generators have slow exposure time control.
- e) All of the above are false.

Q.3 For radiography in children which is the true statement:

- a) X-ray risk in children is less because of higher life expectancy.
- b) Carbon fiber table tops and film plates should not be discouraged from the use in children.
- c) Geometrical unsharpness is usually the most important cause of blurring paediatric radiography.
- d) AEC (Automatic Exposure Control) are not routinely used.
- e) Filtration is preferred in children.

Q.4 Regarding photoelectric effect, which statement is most appropriate?

- a) An interacting photon does not disappear completely.
- b) It is an interaction between photon and free electron.
- c) It does not produce an ionized atom.
- d) It produces characteristic radiation.
- e) It is the Compton interaction.

Q.5 Effective dose can be expressed as:

- a) Gray.
- b) Sicvert's.
- c) Joules/lbs.
- d) KcV.
- e) Curie.

Q.6 Regarding electromagnetic radiation, which statement is false:

- a) Includes infra red light.
- b) Includes radio waves.
- c) Can behave both as wave and as particle.
- d) Includes alpha emission.
- e) Has energy that is inversely proportional to its wavelength.

Q.7

- a)
- b)
- c)
- d)
- e) .

Q.8

- a)
- b)
- c)
- d)
- e) .

(Continued)

Q.9

- a)
- b)
- c)
- d)
- e)

Q.10 Following are true of radiographic contrast except:

- a) A low KVp technique yields high contrast.
- b) High KVp technique allows a greater exposure latitude.
- c) The mAS used affects density.
- d) Film blackening is indirectly proportional to KVp.
- e) Fog reduces the contrast due to increased film density.

Q.11 Regarding intensifying screens which is the incorrect answer:

- a) Do affect resolution.
- b) Help reduce patient dose.
- c) May increase noise on the final image.
- d) Have phosphorescent properties.
- e) Absorb more photons when thickness is increased.

Q.12 In the production of X-rays, which is the wrong statement?

- a) Bremstrahlung radiation occurs due to interaction with ructer.
- b) Characteristic radiation occurs due to interaction with inner electrons.
- c) Characteristic radiation for a tungsten target occurs at 70 KV.
- d) Continuous spectrum is dependent on the voltage.
- e) Bremstrahlung radiation is more important than characteristic radiation in mammography tubes.

Q.13 In chest radiography which is the best statements?

- a) A typical focus film distance is 300 cm for a standard PA view.
- b) A high KV technique improves contrast.
- c) An apical view is taken with 30° control angulation of the beam.
- d) A lordotic view improves the visualization of middle lobe.
- e) A single PA film has an effective dose of 0.04 mSv.

Q.14 Coherent scatter is defined as:

- a) Loss of energy by photon.
- b) Production of ionization.
- c) Production of significant film fogging.
- d) Deflection by bound electrons.
- e) A change in wavelength of photon.

Q.15 Units for measurements, which is the best statement?

- a) Electric charge is measured in Amperes.
- b) Unit for measuring intensity of light is Pascal.
- c) Unit for measuring pressure is Candela.
- d) Unit of power is Joule.
- e) Unit of force is Kgxm/s².

Q.16 Regarding radioactivity, which is the correct statement?

- a) Half life of a radioactive element is that period in which number of that element reduced to ½ of its original value.
- b) Half value layer is the thickness of the absorbing material which decreases the number of photons to ½ of its incident value.
- c) Effective half life is always more than the physical and biological half life.
- d) With radioactive material protective lead apron of 5 mm is used.
- e) Time, distance shielding is an important way for radiation protection particularly with radioactive material.

Q.17 Regarding X-ray film, which is the best statement?

- a) Latent image is produced on the film after exposure and development.
- b) Latent image is formed by the partial reduction of the silver bromide crystals during the exposure.
- c) There is excess of silver iodide over silver bromide in the film emulsions.
- d) Speed of the film emulsion is largely dependent on the range of the grain sizes.
- e) Gelatin is responsible for basic fog.

Q.18 Regarding macroradiography, which statement is incorrect?

- a) To obtain a magnified image the object focus distance is decreased relative to the object film distance which is increased.
- b) A very small focal spot must be used.
- c) Grid is not used.
- d) Usually results in reduced patient dose.
- e) Quantum mottle is not increased.

Q.19 Regarding Atomic number, which is the best statement?

- a) Determines the number of positrons in an atom.
- b) Determines the number of protons in an atom.
- c) Determines the number of neutrons in an atom.
- d) Is not the same in isotopes.
- e) Determines the physical characteristics of an element.

Q.20 Focal spots used in X-ray, which is the best statement?

- a) Macro-mammography – 0.1mm.
- b) Mammography – 0.1mm.
- c) Fluoroscopy – 0.3mm.
- d) General radiography – 0.3mm.
- e) Macro radiography – 1.2mm.

Q.21 In Compton interaction, which is the correct statement?

- a) Energy carried by the recoil electrons would be called absorbed dose.
- b) Scatter photon do not joins the scatter radiation.
- c) It is the complete absorption of X-rays.
- d) >50% energy is absorbed and rest scattered.
- e) Inversely proportional to the E^3 of the photon.

Q.22

- a)
- b)
- c)
- d)
- e) .

Q.23

- a)
- b)
- c)
- d)
- e) .

Q.24 Cervical rib is the:

- a) Spine of seventh cervical vertebra.
- b) Centrum of eight cervical vertebra.
- c) Centrum of seventh cervical vertebra.
- d) Costal element of seventh cervical vertebra.
- e) Costal element of eighth cervical vertebra.

Q.25 A radiologist made the diagnosis of pituitary tumor when he saw an evidence of invasion of the nearby bone by the tumor. This bone was:

- a) Body of the sphenoid.
- b) Floor of the orbit.
- c) Roof of sella turcica.
- d) Pterion.
- e) Basilar part of the occipital bone.

Q.26 Roof of mastoid antrum is formed by:

- a) Mastoid process.
- b) Petrous temporal bone.
- c) Tegmen tympani.
- d) Part of temporal bone.
- e) Lateral part of occipital bone.

Q.27 The only epiphysis present at birth in skeleton is:

- a) Upper end of humerus.
- b) Lower end of humerus.
- c) Lower end of femur.
- d) Upper end of femur.
- e) Lower end of tibia.

Q.28

- a)
- b)
- c)
- d)
- e) .

Q.29 A middle aged woman met with an accident. She was rushed to emergency department with injury of her left face. Radiograph showed fracture ramus of mandible. On examination it was found that there was loss of sensation in the lower teeth and skin of chin and lower lip of that side of face. Which nerve is most likely to be involved?

- a) Inferior alveolar
- b) Infra-orbital
- c) Maxillary
- d) Mandibular
- e) Mental

Q.30 Regarding posteroanterior view of the thorax:

- a) Technicians place posterior aspect of patient's thorax against X-Ray film cassette.
- b) Shoulders are rotated posteriorly.
- c) Deep inspiration increases radiolucency of lungs.
- d) All thoracic vertebrae are clearly visible.
- e) Central tendon of diaphragm is best recognized.

Q.31 Regarding radiographs of heart:

- a) Separate chambers of heart are distinguishable.
- b) Typical anatomical apex is often superior to the shadow of diaphragm.
- c) Transverse type of shadow is observed in pregnant ladies.
- d) Oblique type of shadow is characteristic of few people.
- e) Changes in shadow never indicates functional disease.

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Q.32 Regarding grids used in diagnostic radiology, which statement is correct:

- a) They should not be used in children.
- b) They consist of lead foil strips separated by calcium tungstate spacers.
- c) Grid ratio is ratio of height of lead strips and width of the lead strips.
- d) Grid does not necessitates the increase in exposure to the patient.
- e) A focused grid allows the operator to angle the X-ray tube without the loss of primary radiation.

Q.33

- a)
- b)
- c)
- d)
- e) .

Q.34 Regarding the right ureter:

- a) Its upper part lies in front of the third part of duodenum.
- b) Its lower abdominal part lies behind the bifurcations of the common iliac artery.
- c) It is crossed anteriorly by the right colic artery.
- d) It receives arterial supply from the superior mesenteric artery.
- e) It can be marked in the X-ray at the bases of the transverse processes of right lumbar vertebra.

Q.35 For craniometry, the cranial height is measured from:

- a) Basion to brogma.
- b) Basion to gnathion.
- c) Glabella to nasion.
- d) Basion to nasion.
- e) Bregma to nasion.

Q.36 The commonest site for fracture of mandible is near the:

- a) Molar tooth.
- b) Premolar tooth.
- c) Incisor tooth.
- d) Angle of mandible.
- e) Canine tooth.

Q.37

- a)
- b)
- c)
- d)
- e) .

Q.38

- a)
- b)
- c)
- d)
- e) .

Q.39 The relatively safe and increasingly used technique for the determination of fertilization age of embryo is:

- a) Routine radiography.
- b) Computerized tomographic scanning.
- c) Routine ultrasonography.
- d) Real-time ultrasonography.
- e) Fiberoptic fetoscopy.

Q.40 Regarding radioactivity, which statement is the best:

- a) Maximum number of electrons in the M shell is 64.
- b) An isobar is any nucleus which contains the same number of protons as another given nucleus.
- c) All isotopes achieve stability by the process of radioactive decay.
- d) The binding energy of an electron in a particular shell increases with an increase in the atomic number.
- e) An alpha particle is four times heavier than an electron.

Q.41 The radiographic appearance of epiphysial cartilage plate is:

- a) Regular dark line.
- b) Irregular dark line.
- c) Regular white line.
- d) Irregular white line.
- e) Thick white plate.

Q.42

- a)
- b)
- c)
- d)
- e) .

Q.43

- a)
- b)
- c)
- d)
- e) .

Q.44

- a)
- b)
- c)
- d)
- e)

Q.45 A two year old baby inhaled a small hair-pin. On posteroanterior radiographic examination of the chest the hair-pin may be lodged in the:

- a) Left main bronchus.
- b) Right inferior lobar bronchus.
- c) Left upper lobe bronchus.
- d) Left lower lobe bronchus.
- e) Right upper lobe bronchus.

Q.46 Regarding radiographic PA view of the thorax:

- a) Technicians place posterior aspect of patient's thorax against X-Ray film cassette.
- b) Shoulders are rotated posteriorly.
- c) Deep inspiration increases radiolucency of lungs.
- d) All thoracic vertebrae are clearly visible.
- e) Central tendon of diaphragm is best recognized.

Q.47

- a)
- b)
- c)
- d)
- e)

Q.48

- a)
- b)
- c)
- d)
- e)

Q.49 Following but one are the features of arterial thrombi:

- a) They are friable
- b) They are easily detached
- c) They are dry
- d) They have mottled appearance
- e) They are wedge-shaped

Q.50 Regarding scintillation crystal in gamma camera, which statement is the inappropriate:

- a) Has high density and high atomic number.
- b) Is pure sodium iodide crystal.
- c) Is typically 9-12 mm thick.
- d) Must be placed in a hermetically sealed container.
- e) Has an improved sensitivity when it is thick rather than thin.

Q.51 Regarding filters used in diagnostic radiography which statement is correct:

- a) Copper and aluminium are the materials of choice for added filtration of X-ray beam.
- b) Copper alone is a better filter.
- c) In compound filter high atomic number material filter faces the patient and low atomic number material filter faces the X-ray tube.
- d) Characteristic radiation produced by AP filter can give significant radiation dose to the skin.
- e) An added filter of AP 3mm thick is advantageous over an aluminium filter 2 mm thick.

Q.52 Following are plasma proteins excluding one:

- a) Albumin
- b) Aldolase
- c) Ceruloplasmin
- d) Ferritin
- e) Transferrin

Q.53 The pathogenesis of bacterial infection includes initiation of infectious process and the mechanism that lead to the development of sign and symptom of disease. Regarding the generalized sequence of the event of infection which one of the following is not correct?

- a) Transmission from an external source into the portal of entry.
- b) Adherence to the host cell by bacterial pilli.
- c) Activation of host defense mechanism both specific and non specific.
- d) Invasion and colonization at the site of invasion of host tissue.
- e) Toxin production accompanied by process of inflammation.

Q.54 Which statement regarding fungi is not correct?

- a) All fungi are able to grow as yeast or mold.
- b) Fungi are eukaryotes they have mitochondria in cytoplasm.
- c) Fungi possess cell membrane which contain sterol.
- d) Fungi have one or more nuclei and chromosomes.
- e) All fungi contain chlorophyll as energy source.

- Q.55** Which type of inflammatory cell would predominate in histological sections of a biopsy specimen from an enlarged salivary gland in an individual with Sjogren's syndrome?
- a) Basophil.
 - b) Eosinophil.
 - c) Epithelioid cell.
 - d) Lymphocyte.
 - e) Neutrophil.
- Q.56**
- a)
 - b)
 - c)
 - d)
 - e) .
- Q.57**
- a)
 - b)
 - c)
 - d)
 - e) .
- Q.58**
- a)
 - b)
 - c)
 - d)
 - e) .
- Q.59**
- a)
 - b)
 - c)
 - d)
 - e) .
- Q.60** During acute inflammation, histamine induced increased vascular permeability causes the formation of exudates (inflammatory edema). Which of the following cell types is most likely to secrete histamine and cause this increased vascular permeability?
- a) Endothelial cells.
 - b) Fibroblasts.
 - c) Lymphocytes.
 - d) Mast cells.
 - e) Neutrophils.
- Q.61** What type of leukocyte actively participates in acute inflammatory processes and contains myeloperoxidase within its granules and alkaline phosphatase in its secondary (specific) granules?
- a) Neutrophils.
 - b) Eosinophils.
 - c) Monocytes.
 - d) Lymphocytes.
 - e) Plasma cells.
- Q.62** A 47-year-old man presents with pain in the midportion of his chest. The pain is associated with eating and swallowing food. Endoscopic examination reveals an ulcerated area in the lower portion of his esophagus. Histological sections of tissue taken from this area reveal an ulceration of the oesophageal mucosa that is filled with blood, fibrin, proliferating blood vessels, and proliferating fibroblasts. Mitoses are easily found, and most of the cells have prominent nucleoli. Which of the following statements best describes this ulcerated area?
- a) Caseating granulomatous inflammation.
 - b) Dysplastic epithelium.
 - c) Granulation tissue.
 - d) Squamous cell carcinoma.
 - e) Non-caseating granulomatous inflammation.
- Q.63** A 50-year-old man presents with signs of fatigue that are the result of anemia. Investigations reveal that his anaemia is the result of bleeding from a colon cancer located in the sigmoid colon. The lesion is resected and at the time of surgery no metastatic disease is found. Which of the following markers would be most useful for future follow-up of this patient for the evaluation of possible metastatic disease from his colon cancer?
- a) Alpha fetoprotein (AFP).
 - b) Carcinoembryonic antigen (CEA).
 - c) Chloroacetate esterase (CAE).
 - d) Human chorionic gonadotropin (hCG).
 - e) Prostate-specific antigen (PSA).
- Q.64** A 30-year-old man from Afghanistan presents with a markedly edematous right foot that has multiple draining sinuses. A Gram stain from one of these draining sinuses reveals gram-positive filamentous bacteria that are partially acid-fast. What is this organism?
- a) Actinomyces israelii.
 - b) Corynebacterium diphtheriae.
 - c) Listeria monocytogenes.
 - d) Nocardia asteroides.
 - e) Pneumocystis carinii.

- Q.65**
- a) _____ d)
b) _____ e)
c) _____
- Q.66** A 45-year-old woman presents with the slow development of numerous macules and nodules on her face. Physical examination finds a peripheral neuropathy with enlarged palpable nerves. A biopsy from one of the skin nodules reveals aggregates of foam cells within the dermis. Special stains reveal rare acid-fast bacilli within peripheral nerves. Which of the following is the most likely diagnosis?
- a) Leprosy. d) Syphilis.
b) Nocardiosis. e) Tuberculosis.
c) Sarcoidosis.
- Q.67** The procoagulant factors produced by the endothelial cells include. One of the following:
- a) Thrombomodulin. d) Fibrinogen.
b) Prostacyclin. e) Thromboxane A2.
c) Von Willibrnad factor.
- Q.68** Sudden death in embolism is not due to:
- a) Pulmonary embolism. d) Embolism of the femoral artery.
b) Cerebral embolism. e) Amniotic fluid embolism.
c) Coronary embolism.
- Q.69** Ascites will not develop in one of the following condition:
- a) Liver cirrhosis. d) Renal hypoperfusion.
b) Nephrotic syndrome. e) Proteinuria > 12 G /24hrs since 15 days.
c) Malnutrition.
- Q.70** A 20-year-old woman has had a 6 month history of symmetrical, proximal muscle weakness. She has 4/5 motor strength in all extremities. A deltoid biopsy shows a neutrophilic infiltrate with focal necrosis of the muscle fibers. Her antinuclear antibody test is negative, but she has histidyl-tRNA synthetase (Jo-1) antibody in her serum. Which of the following additional laboratory test findings would be most likely be present in this patient?
- a) Heart failure. d) Skin rash.
b) Malabsorption. e) Renal failure.
c) Peripheral neuropathy.
- Q.71** A 54-year-old woman goes to her physician because she has noted that during the past month her fingers become cold and painful upon exposure to cold. She has mild dyspnea, but no wheezing. She is found to have a blood pressure of 170/110 mm Hg. The antinuclear antibody test is positive with a titer of 1:256 and a nucleolar pattern. Her serum urea nitrogen is 15 mg/dL with creatinine of 1.1 mg/dL. These findings most strongly suggest that she has which of the following autoimmune diseases?
- a) Discoid lupus erythematosus (DLE). d) Sjogren's syndrome (SS).
b) Progressive systemic sclerosis (PSS). e) Rheumatoid arthritis (RA).
c) Polymyositis-dermatomyositis.
- Q.72** A genetic counselor elicits the history that three adult males and one adult female in a family of 10 over 3 generations are mentally retarded, the males more severely so. Physical examination of these affected males reveals no major morphologic anomalies, though their testes appear to be slightly enlarged, without mass lesions present. These males have been healthy, without a history of major illnesses. Which of the following genetic abnormalities is the most likely etiology for these findings?
- a) Klinefelter syndrome. d) Phenylketonuria.
b) Gaucher disease. e) Down syndrome.
c) Fragile X syndrome.
- Q.73** Which one of the following is the most common childhood malignancy
- a) Leukemia. d) Retinoblastoma.
b) Neuroblastoma. e) CNS tumours.
c) Wilms tumour.
- Q.74** Which of the following conditions is an asymptomatic, reversible manifestation in the liver due to alcohol abuse
- a) Cirrhosis. d) Acute hepatitis.
b) Hepatoma. e) Fulminant hepatitis.
c) Fatty change.
- Q.75** Which of the following is not an oncogenic virus?
- a) HTLV-I. d) Hepatitis B virus.
b) Human papilloma virus. e) Epstein Barr virus.
c) Vericella Zoster.

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- Q.76 Which of the following is non neoplastic lesion?**
a) Fibroma. d) Osteoma.
b) Lipoma. e) Papilloma.
c) Heamatoma.
- Q.77 Which of the following is a disorder of multifactorial inheritance?**
a) Huntington disease. d) Cystic fibrosis.
b) Familial polyposis coli. e) Sickle cell anemia.
c) Diabetes mellitus.
- Q.78 Regarding edema, which statement is not correct?**
a) Increased capillary pressure. d) Decreased tissues hydrostatic pressure.
b) Increased colloid osmotic pressure. e) Increased tissues colloid osmotic pressure.
c) Decreased colloid osmotic pressure.
- Q.79 Regarding tansudate, which one is not acceptable?**
a) Protein not increased. d) Specific gravity less than 1.012.
b) Inflammatory cells. e) Decreased oncotic pressure.
c) Specific gravity more than 1.020.
- Q.80 The following but one is the causes of hypovolemic shock**
a) Vomiting. d) Hemorrhage.
b) Burn. e) Arrhythmia.
c) Diarrhea.
- Q.81 George Engel put forward the concept of Biopsychosocial perspective of health and disease which stresses on the understanding of:**
a) Holistic medicine. d) Personality of the patient
b) Social milieu of the patient. e) Psychosocial environment of patient in the same way as pathophysiological processes.
c) Better communication skills.
- Q.82 While the physician is expected to know the patient's language, the patient is often unaware of the medical jargon. Therefore:**
a) The responsibility lies with the physician to bridge the communication gap d) Medical jargon must be banned.
b) The physician must first simplify and explain the medical terminology. e) The physician must learn other languages.
c) The physician must explore the psychosocial background of each patient.
- Q.83 Active listening is a complex process which involves a simultaneous focus on patient's words as well as:**
a) Body language. d) Adequate eye contact.
b) Paralinguistic aspects. e) Open ended questions.
c) Active prompting.
- Q.84 Empathy building refers to the statements of the doctor that:**
a) Conveys to the patient that his feelings have been well-understood. d) Reflect his good upbringing.
b) Show his sincere sympathy for the patient. e) Indicate good communication skills.
c) Relaxes the patient.
- Q.85 Empathic skills are essential for better therapeutic relationship and include reflection, validation, support, respect and:**
a) Exclusivity. d) Partnership.
b) Unconditional positive regard. e) Friendship.
c) Informational care.
- Q.86 Regarding the stomach:**
a) Its fundus reaches up to the level of the third left rib. d) Vagus stimulation relaxes its muscle.
b) Its angular notch is found along the greater curvature. e) Its pain is referred to around the umbilicus.
c) It is related posteriorly to the left suprarenal gland.
- Q.87 Regarding borders of the heart:**
a) It is of no clinical significance to recognize borders of heart, when examining a radiograph of chest. d) Lower border is formed only by right ventricle.
b) Right border of the heart is only formed by right ventricle. e) Apex is formed by both right and left ventricles.
c) Left border is formed mainly by left auricle above and left ventricle below.

- Q.88 Counselling is a technique which aims at:**
- a) Making people less emotional.
 b) Achieving a greater depth of understanding and clarification of the problem
 c) Comparing the patient's experiences with one's own.
 d) Giving sincere advice and solutions to the patients problems
 e) Breaking bad news in a professional manner.
- Q.89 A doctor aiming to adopt the role of a counsellor must exhibit and develop attributes such as :**
- a) Wide ranging knowledge base,
 b) Charismatic personality
 c) Mastery of the local dialect.
 d) Unconditional positive regard.
 e) Honest and simple life style.
- Q.90 Regarding radiography of thorax:**
- a) Most frequently used radiograph is an anteroposterior view.
 b) Better view in lateral radiograph is obtained when upper limbs are by the sides.
 c) Patient takes a deep breath and holds it while taking a posteroanterior view.
 d) Lungs are highly radiodense as compared to surrounding structures.
 e) Heart has a central radiolucent shadow in posteroanterior projections.
- Q.91 A 56 years old male patient has just been diagnosed with Diabetes Mellitus. His physician is concerned about his treatment compliance with the prescribed regimen of medication and dietary changes. The patient is most likely to follow the instructions given by the physician if the conversation with the physician makes the patient :**
- a) Calm and collected.
 b) Calm and questioning.
 c) Concerned and attentive.
 d) Worried and distracted.
 e) Fearful and self absorbed.
- Q.92 Consent is the agreement of the patient to an examination, procedure, treatment or intervention. Which of the following pillars of medical ethics does it represent?**
- a) Justice.
 b) Beneficence.
 c) Autonomy.
 d) Non-maleficence.
 e) Confidentiality.
- Q.93 A patient constantly defying prohibitions by the doctors in spite of repeated warnings of serious consequences is displaying the phenomena of :**
- a) Transference.
 b) Resistance.
 c) Counter-transference.
 d) Non-compliance.
 e) Emotional instability.
- Q.94 A researcher wishes to start a research topic in a community. He opts for a 'need driven' plan. Which of the following would be his / her best option:**
- a) Selecting a disease which is most difficult to manage.
 b) Testing a drug which can be commercially important.
 c) Finding an additional management for a problem which already has three modes.
 d) Selecting a problem which is self limiting.
 e) Selecting a problem by its seriousness of chronicity, complications and mortality.
- Q.95 A physician follows up 100 patients exposed to a risk factor and 200 subjects not exposed to the factor. At the end of the study he / she observes the number of cases developing a disease in both the groups. What type of risk analysis does he / she get at the end:**
- a) Prevalence rate.
 b) Odd's ratio.
 c) Coefficient of correlation.
 d) Incidence rates.
 e) Standard error.
- Q.96 Qualitative research is an important investigation in many health fields. If a physician was to undertake this form of research, which of the following steps would he / she undertake:**
- a) Observations and in-depth interviews.
 b) Finding mean, median and modes of the problem.
 c) Following up a group of say hypertensives to record improvement in blood pressure readings.
 d) An advanced laboratory test to know the levels of a continuous variable.
 e) Identifying confounding variables which are likely to disturb the research.
- Q.97 Regarding mammography which statement is correct:**
- a) For magnification mammography a focal spot size of 10mm diameter is required.
 b) Total permanent filtration of X-ray tube should be equal to 2.5 mm of aluminium.
 c) Window of X-ray tube is made up of beryllium.
 d) In order to see micro calcification we have to increase the Kvp upto 80.
 e) To reduce the radiation dose to the breast double sided film screen combination is used.

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Q.98 Regarding CT scan which is the best statement:

- a) X-ray tube is typically operated at 70 Kvp.
- b) Filtered back projection is the most common image reconstruction technique utilized in most modern scanners.
- c) Average energy of the emerging beam is significantly higher than that of the incident beam.
- d) Gas detectors are filled with an inert gas such as xenon at low pressure to increase its efficacy.
- e) All of the above are false.

Q.99 A physician undertakes a 'screening' study to test a new technique in a problem for which an invasive 'gold standard' test is available. Which of the following statement would be valid in this study:

- a) Finding the confirmatory role of the test against the gold standard.
- b) Assessing the power of the test to diagnose both positive and negative cases.
- c) Assessing cost-effectiveness of the new test.
- d) Identifying the flaws of the gold standard test for improvement.
- e) Assessing the acceptability of the test by community.

Q.100 In a desire to find the association of levels of cholesterol with different ages a physician examines a large population of different ages and records their cholesterol levels. Which of the following procedure will help in this study in final analysis:

- a) Calculating standard deviation and mean to develop a normal curve.
- b) Calculating regression value to find the critical value by which the cholesterol behaves with age.
- c) Calculating coefficient of correlation (r value) to find the type of correlation.
- d) Calculating coefficient of variation.
- e) Calculating standard error.