

**C****DE-2911****First Year B. Sc. (Sem. I) (Medical Technology)
Examination****March / April – 2016****Basic Laboratory Instruments : MT 02**

Time : 2 Hours]

[Total Marks : 50

Instructions :

(1)

નીચે દર્શાવેલ નિશાનીયાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
FIRST YEAR B. SC. (SEM. I) (MEDICAL TECHNOLOGY)	<input type="text"/>
Name of the Subject :	<input type="text"/>
BASIC LABORATORY INSTRUMENTS : MT 02	<input type="text"/>
Subject Code No. : <input type="text"/> 2 <input type="text"/> 9 <input type="text"/> 1 <input type="text"/> 1	<input type="text"/>
Section No. (1, 2,.....): Nil	<input type="text"/>
	Student's Signature

- (૨) પ્રશ્ન પત્રમાં કુલ ૫૦ પ્રશ્નો છે, બધાજ ફરજિયાત છે. દરેક પ્રશ્નનો (૧) એક ગુણ છે.
- (2) There are 50 questions each question carries one (1) mark and all are compulsory.
- (૩) દરેક પ્રશ્નનો કાળજીપૂર્વક અભ્યાસ કરી સાચો વિકલ્પ પસંદ કરો.
- (3) Read the question carefully before selecting the correct option.
- (૪) બધા જ પ્રશ્નો ફરજિયાત છે.
- (4) All questions are compulsory.

**O.M.R. Sheet ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ
O.M.R. Sheet-ની પાછળ છાપેલ છે.**
**Important instructions to fillup O.M.R. Sheet
is given back side of provided O.M.R. Sheet.**

- 1 What is "Limit of Resolution" with reference to light microscopy?
 - (A) 0.2 nm
 - (B) 0.2 cm
 - (C) 0.2 μm
 - (D) 0.2 mm

- 2 In colorimeter, absorption of sample is measured in which sample holder?
 - (A) Micro pipette
 - (B) Burette
 - (C) Cuvette
 - (D) Pipette

- 3 To maintain the pH meter, which step should NOT follow?
 - (A) Wash the electrode with dist. water after and before use
 - (B) Scratches should not be formed on electrode
 - (C) Calibration should checked regularly
 - (D) Keep the Electrode Dry

- 4 Which three solutions are widely used for the calibration of pH meter?
 - (A) Standard Solutions of pH 1, 7,14
 - (B) Standard Solutions of pH 1, 4, 12
 - (C) Standard Solutions of pH 7, 4, 9.2
 - (D) Standard Solutions of pH 3, 8, 14

- 5 Which following type of Filter is used in Colorimeter to get monochromatic light?
 - (A) Cellulose Acetate Filter
 - (B) None of these
 - (C) Glass Filter
 - (D) Membrane Filter

- 6 Centrifuge accelerate the sedimentation process by using _____.
- (A) Relative force
 (B) Centrifugal force
 (C) Magnetic force
 (D) Horizontal force
- 7 Which component is used to control the speed in centrifuge?
- (A) Lid
 (B) Rotor
 (C) Rheostat
 (D) Tachometer
- 8 The objective lens magnifies the specimen and produce the image, this image is known as
- (A) Virtual Image
 (B) High quality image
 (C) Real Image
 (D) Resolved Image
- 9 How %T (Transmittance) can be converted to Absorbance (A)?
- (A) $A = 2 \times \%T$
 (B) $A = 2 / \%T$
 (C) $A = 2 - \%T$
 (D) $A = 2 + \%T$
- 10 Total Resolution of Microscope ($d_{\text{microscope}}$) can be calculated by using

(A)
$$\frac{\lambda}{NA_{\text{objective}} + NA_{\text{eyepiece}}}$$

(B)
$$\frac{\lambda}{NA_{\text{objective}} + NA_{\text{condensor}}}$$

(C)
$$\frac{0.5 \lambda}{NA_{\text{objective}} + NA_{\text{eyepiece}}}$$

(D)
$$\frac{0.5 \lambda}{NA_{\text{objective}} + NA_{\text{condensor}}}$$

- 11 Which is the main component of Centrifuge?
 (A) Voltmeter
 (B) Ivory Scale
 (C) Phototube
 (D) Tachometer
- 12 In Ultracentrifuge, maximum RCF can be achieved up to _____.
 (A) 3,000 X g
 (B) 25,000 X g
 (C) 1,00,000 X g
 (D) 12,000 X g
- 13 To maintain centrifuge, following should be avoided
 (A) To stop the centrifuge by hand while rotor is still rotating
 (B) Closing of the lid
 (C) Balancing of the centrifuge tubes
 (D) Labeling of the centrifuge tube
- 14 Following which operation can be carried out by Centrifuge?
 (A) Separation of Sediment in Urine and Separation of Plasma or Serum from RBC both
 (B) None of these
 (C) Separation of Sediment in Urine
 (D) Separation of Plasma or Serum from RBC
- 15 Which is the component of Electronic Balance?
 (A) Null Detector
 (B) Phototube
 (C) Ivory Scale
 (D) Leveling screw
- 16 The light source in Colorimeter is generating _____ light.
 (A) Infra Red
 (B) Ultra Violet
 (C) Polychromatic
 (D) Monochromatic
- 17 If the ocular of a microscope is 10X and the objective is set at 100X, then what is the total magnification of the microscope?
 (A) 450 X (B) 10 X
 (C) 1000 X (D) 100 X
- 18 In Fixed angle rotor, the tubes are positioned at _____ to the vertical axes.
 (A) 180° (B) 210°
 (C) 25° to 40° (D) 90°
- 19 Water Bath is utilized to carry out a chemical reaction at specific _____.
 (A) pH (B) Rotation
 (C) Temperature (D) Pressure
- 20 RPM of the centrifuge can be calibrated by using
 (A) RPM calibrator
 (B) Tachometer
 (C) Revolutionometer
 (D) Speedometer

- 21 In Stainless steel Water Distillation Apparatus, collected steam is cooled by
 (A) Heating Coil
 (B) None of these
 (C) Condenser
 (D) Cooling coil
- 22 Monocular Microscope refers to
 (A) Microscope with camera
 (B) Microscope with Two ocular and one objective lens
 (C) Microscope with one ocular lens
 (D) Microscope with only one objective Lens
- 23 Colorimetric determination can be carried out, if solution is
 (A) Fluorescent
 (B) Having precipitate
 (C) Colorless
 (D) Colored
- 24 In Calomel Electrode, which of the metal or metal salt is used?
 (A) Chromium (B) Nickel
 (C) Mercury (D) Lead
- 25 _____ first described about units of pH.
 (A) Pasteur (B) Newton
 (C) Robert Koch (D) Sorensen
- 26 What should not be selection criteria, while selecting the centrifuge?
 (A) Maximum RCF obtained
 (B) Total cost and color of Centrifuge
 (C) Type of Rotor
 (D) Total number of buckets to hold tubes
- 27 $RCF = R \times (RPM)^2 \times 118 \times 10^{-7}$; Here, meaning of "R"?
 (A) Radius Centrifuge Tube
 (B) None of these
 (C) Radius of Rotor
 (D) Radius of Centrifuge
- 28 When a ray of light passes from one medium to another medium, it bent at the surface, this phenomena is known as
 (A) Bending (B) Amplitude
 (C) Refraction (D) Frequency
- 29 What is true about Monopan Balance?
 (A) Having Single pan
 (B) None of these
 (C) Used to weigh only Liquids
 (D) Used to weigh only Solids
- 30 A common balance is used to find out the _____ of a substance by comparing it with known masses.
 (A) Horizontal Balance
 (B) Mass
 (C) Molecular Weight
 (D) Molecular size

- 31 Maximum displacement of the wave in Upper direction from the position of equilibrium is called as
- (A) Though
 - (B) Crest
 - (C) Wave diameter
 - (D) Wave length
- 32 Following (A, B, C, D, E, F) are the steps of operation of COLORIMETER. Arrange them in proper sequence.
- A. Select and Adjust proper filter.
 - B. Switch ON the instrument.
 - C. Replace the Blank with Test solution.
 - D. Read the Absorbance of test solution and note it down.
 - E. Switch OFF the instrument.
 - F. Adjust the colorimeter at 100% T (Zero absorbance) by using Blank Solution.
- (A) B → A → F → C → D → E
 - (B) B → F → D → C → A → E
 - (C) C → D → A → B → E → F
 - (D) A → B → C → D → E → F
- 33 The part which is used to control the amount of light entering in condenser is known as
- (A) Iris Diaphragm
 - (B) Sub stage Condenser
 - (C) Coarse adjustment knob
 - (D) Fine adjustment knob
- 34 Following which objective lens is known as Oil Immersion lens?
- (A) 100X
 - (B) 45X
 - (C) 10X
 - (D) 4X
- 35 Under compound microscope, light source is ON but image is observed very dark. This problem may be solved by
- (A) Putting a drop of oil on slide
 - (B) Adjusting the iris diaphragm
 - (C) Moving the stage downwards
 - (D) Cleaning the eyepiece
- 36 Following is NOT component of pH meter.
- (A) Glass Electrode
 - (B) Volt meter
 - (C) Wavelength selector
 - (D) Reference Electrode

- 37 Give the full form of : OD
(A) Optical Density
(B) Optical Diversity
(C) Organic Densitometry
(D) Optical Derivative
- 38 For care and maintenance of microscope, which should NOT follow?
(A) Cover the microscope when not in use
(B) Clean the oil from the lens after use
(C) Prevent the lens from dust
(D) Remove eyepiece and objective after use
- 39 While using oil immersion lens, the lens must
(A) Touch oil surface
(B) Not be in contact with oil surface
(C) Be very far from oil surface
(D) Have 0.5 mm distance from oil surface
- 40 Expand the term: RCF
(A) Radial Centrifugal Force
(B) Relative Centrifugal Force
(C) Revolution Centrifugal Force
(D) Rational Centrifugal Force
- 41 If lens fails to focus all colors to the same convergence point, this type of aberration is known as
(A) Lateral Color aberration
(B) Chromatic aberration
(C) Astigmatism
(D) Distortion aberration
- 42 Color intensity of solution of the solution can be measured by
(A) Calorimeter
(B) Intensionometer
(C) pH Meter
(D) Colorimeter
- 43 As per Lambert's Law, when _____ light is passed through color solution, amount of light decreases exponentially with thickness of solution.
(A) Dichromatic
(B) Polychromatic
(C) Monochromatic
(D) Heterochromatic

- 44 Arrange light path in Bright field microscopy.
- A. Objective Lens
 - B. Occular lens
 - C. Specimen
 - D. Condenser Lens
- (A) A → B → C → D
(B) B → A → C → D
(C) D → C → A → B
(D) B → D → C → A
- 45 Why organic solvents should not used to clean the immersion oil from the lens?
- (A) It dissolve cement holding the lens
 - (B) Organic solvents are very costly
 - (C) It makes image hazy
 - (D) It causes lens reflection
- 46 pH of the Solution-B is 7.0 (Neutral). To make its pH 2, what should be added to Solution-B?
- (A) 1 N NaCl
 - (B) 1 N KCl
 - (C) 1 N HCl
 - (D) 1 N NaOH
- 47 For the maintenance of Colorimeter, which step(s) should be followed?
- (A) Calibrate the instrument Regularly
 - (B) All of these
 - (C) Put OFF the main switch, when instrument is not in use.
 - (D) Do not switch ON the instrument during electrical fluctuation.
- 48 Production of _____ can be carried out by Water distillation apparatus.
- (A) Distilled Water
 - (B) Hard water
 - (C) Sterile Water
 - (D) Mineral Water
- 49 pH meter is used to measure
- (A) Concentration of Hydrogen ion in solution
 - (B) Density of Hydrogen ion in solution
 - (C) Quality of Hydrogen ion in solution
 - (D) Intensity of Hydrogen ion in solution
- 50 pH of the Solution-A is 3.19, then Solution-A is _____.
- (A) Neutral
 - (B) None of these
 - (C) Acidic
 - (D) Alkaline