

# MIZORAM PUBLIC SERVICE COMMISSION

## TECHNICAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO LABORATORY TECHNICIAN UNDER MIZORAM INSTITUTE OF MEDICAL EDUCATION AND RESEARCH (MIMER) - 2018

### TECHNICAL PAPER – II

Time Allowed : 2 hours

Full Marks : 150

*Attempt all questions.*

*All questions carry equal marks of 2 each.*

1. The microscopic features of Chronic inflammatory cells are, except.  
(a) Monocytes (b) Macrophage  
(c) Lymphocytes (d) Eosinophils
2. Phagocytosis involves the following, except.  
(a) Recognition and attachment (b) Release of histamine  
(c) Engulfment (d) Killing or degradation
3. The following are the chemical mediators of inflammation, except.  
(a) Manocytes (b) Histamine  
(c) Chemokines (d) Complements
4. Hyperplasia means  
(a) Increase in the size of cells that results in an increase in the size of the organs.  
(b) Increase in the numbers of cells in an organ or tissue in response to stimulus.  
(c) increase in the size, numbers of cells to increase the size of the organs.  
(d) None of these.
5. Nuclear changes of Necrosis includes the following, except.  
(a) Karyolysis (b) Pyknosis  
(c) Fragmentation cell wall (d) Karyorrhexis
6. The cells on immune systems are, except.  
(a) T. lymphocytes and B. lymphocytes (b) Monocytes  
(c) Natural killer cells (d) Macrophages
7. Lack of differentiation, both morphologically and functionally to the corresponding normal parenchymal cells is termed as  
(a) Metaplasia (b) Anaplasia  
(c) Pleomorphhism (d) None of these
8. The following are the characteristics of malignant tumours, except.  
(a) Less differentiated (b) Retain functions of their cell of origin  
(c) Local invasiveness (d) Distant spread
9. Acid burn in laboratory accident occurs with the following acid, except.  
(a) Nitric Acid (b) Sulphuric Acid  
(c) Hydrochloric Acid (d) Acetic Acid

10. Greenish colouration of urine is due to  
(a) Jaundice (b) Haemolysis  
(c) Phenol poisoning (d) Both (a) and (c)
11. High specific gravity of urine is due to  
(a) Chronic nephritis (b) Glycosuria  
(c) Albuminuria (d) Acute Nephritis
12. The normal pH of stool is  
(a) Slightly acid and slightly alkaline (b) Neutral  
(c) Neutral or weakly alkaline (d) None of these
13. Spermatozoa comprises about-  
(a) 6% of semen volume (b) 7% of semen volume  
(c) 10% of semen volume (d) 5% of semen volume
14. In the first few week of gestation the main site of haemopoiesis is –  
(a) Spleen (b) Lymph node  
(c) Yolk sac (d) Bone marrow
15. When EDTA is used as anticoagulant, the following are true, except.  
(a) Leucocyte morphology is not well preserved  
(b) PCV is significantly reduced  
(c) MCHC is proportionately increased  
(d) Platelets swells and disintegrate
16. Falsely high count of TLC can occurs in  
(a) Delay in counting  
(b) Dilution fluid not taken up to the requisite mark  
(c) Blood not drawn up to the requisite mark  
(d) Dilution fluid taken in excess of the requisite mark
17. Microcytosis of RBCs is found in, except.  
(a) Thalassaemia (b) Folic acid deficiency  
(c) Haemoglobinopathies (d) Spherocytosis
18. Haemoglobin contains about-  
(a)  $1/2^{\text{th}}$  of body iron (b)  $1/5^{\text{th}}$  of body iron  
(c)  $2/3^{\text{rd}}$  of body iron (d)  $1/4^{\text{th}}$  of body iron
19. Iron is absorbed in  
(a) Ferric form (b) Ferrous form  
(c) Ferritin form (d) Haemosiderin form
20. In Giemsa's stain, the required amount of Giemsa's powder is  
(a) 0.2 gm (b) 0.3 gm  
(c) 0.4 gm (d) None of these
21. Evidence of haemolysis are, except  
(a) Increased plasma LDH (b) Increased urinary urobilinogen  
(c) Hyperbilirubinaemia (d) Basophilic stippling

22. Laboratory features of SLE includes, except  
(a) Platelets decreased (b) Haemoglobin and PCV decreased  
(c) Reticulocytes increased (d) ANA – positive
23. Typical blood picture of Acute Leukaemia are, except.  
(a) High MCH (b) Anaemia  
(c) Thrombocytopenia (d) Moderate or mark increased blasts cells
24. In Alpha Thalassaemia there is  
(a) Deletion of four alpha chain  
(b) Free Gamma chains form tetrads, producing haemoglobin  
(c) B-chain production is absent or diminished  
(d) Both (a) and (b)
25. Indirect Coomb's test is to detect  
(a) Antibody identification  
(b) To detect incomplete antibodies during pregnancy  
(c) To differentiate between acquired and congenital haemolytic anaemias  
(d) Both (a) and (b)
26. Indication of autologous transfusion includes the following, except  
(a) Requirement of rare blood types (b) Prevention of alloimmunization  
(c) Religious belief (d) In an accidental injury
27. In  $G_6PD$  deficiency, the following are true, except  
(a) Deficiency in apoprotein (b) Increased reticulocyte counts  
(c) Polychromasia (d) Normochromic, normocytic anaemia
28. The richest sources of Vitamin  $B_{12}$  are, except  
(a) Vegetables (b) Kidneys  
(c) Liver (d) Heart
29. Pancytopenia is the simultaneous presence of the following, except  
(a) Anaemia (b) (a) and (c) only  
(c) Leucopenia (d) Thrombocytopenia
30. The structural formula of Hb- $A_2$  is  
(a) Alpha-2, Beta-2 (b) Alpha-2, Gamma-2  
(c) Alpha-2, Delta-2 (d) None of these
31. Structural formula of Haemoglobin-S is  
(a)  $\text{Alpha}_2\text{Beta}_2^6\text{glu—valine}$  (b)  $\text{Alpha}_2\text{Beta}_2^6\text{glu—lysine}$   
(c)  $\text{Alpha}_2\text{Beta}_2^{121}\text{glu—glycin}$  (d) None of these
32. Percentage of Normal HbA is about  
(a) 96% (b) 50%  
(c) 80% (d) 45%
33. Plasma cells are derived from  
(a) Platelets (b) Lymphocytes  
(c) Monocytes (d) RBC

34. Normal life span of Platelets is about  
(a) 120 – 140 days (b) 2 – 3 months  
(c) 7 – 14 days (d) 1 – 2 days
35. The cells responsible for immunity is  
(a) Neutrophils (b) Lymphocytes  
(c) Monocytes (d) Both (a) and (c)
36. In female, due to menstruation, the monthly loss of iron is about  
(a) 2 – 5 mg (b) 15 – 28 mg  
(c) 1.5 – 2.8 mg (d) None of these
37. High rise of ESR will be found in  
(a) Multiple myeloma (b) Malaria  
(c) Typhoid fever (d) None of these
38. Haemolytic disease of the newborn due to Rhesus incompatibility depends upon the  
(a) The mother possessing RH antigens not present in the red cell of baby  
(b) Inability of the baby to react against the red cells of mother  
(c) Transplacental passages of IgM anti-Rh antibodies  
(d) Transplacental passages of IgG anti-Rh antibodies
39. Which one of the statement is incorrect?  
The distribution of macrophages in -  
(a) tissue is as “histiocytes”  
(b) in sinusoid of liver – as “Kupffer’s Cells”  
(c) in bone marrow, Sinusoid of spleen as “Mast Cell”  
(d) in blood as “Basophils”
40. Mast cells produces  
(a) Glycoproteins (b) Histamine  
(c) Help formation of hyaluronic acid (d) Heparin
41. The following are the characteristics of epithelial tissue, except  
(a) The constituent cells are closely packed  
(b) It has capillaries  
(c) The cells rest on basement membrane  
(d) The surface cells are destroyed by wear and tear.
42. Renal biopsy for paraffin embedding is preferred to be fixed with  
(a) Clark’s fluid (b) Neutral buffered formalin  
(c) 10% formal saline (d) All of these
43. For dehydration of delicate tissue it is recommended to start processing with  
(a) 20% Ethanol (b) 40% Ethanol  
(c) 30% Ethanol (d) None of these
44. Clearing agents suitable for routine use includes the following, except  
(a) Chloroform (b) Toluene  
(c) Xylene (d) Methanol

45. The temperature of water bath in histopathological laboratory used for floating the paraffin sections should be
- (a) 10°C below the melting point of paraffin      (b) 5°C below the melting point of paraffin  
(c) 15°C below the melting point of paraffin      (d) 20°C below the melting point of paraffin
46. The most common gases used for frozen sections of tissue are, except
- (a) Carbon-dioxide gas      (b) Liquefied Nitrogen  
(c) Aerosol Spray      (d) Nitrous oxide
47. Masson's trichrome stain is used to demonstrate
- (a) Collagen      (b) Muscle  
(c) Elastic tissue      (d) Both (a) and (c)
48. Best's Carmine stain is used to demonstrate, except
- (a) Lipids      (b) Glycogen  
(c) Mucin      (d) Fibrin
49. Hematogenous endogen pigments includes the following, except
- (a) Bile fragments      (b) Porphyrins  
(c) Chromaffin      (d) Haemosiderins
50. Malarial pigment is an
- (a) Endogeneous mineral  
(b) Non- haematogenous endogeneous pigments  
(c) Artefact pigments  
(d) Exogeneous pigments
51. Primary amyloid often affect,
- (a) Muscle, heart, skin and tongue      (b) Liver, spleen, kidney and adrenal glands  
(c) Bone, cartilage and fat      (d) None of these
52. In Highman's Congo red technique, Amyloid stained
- (a) Red      (b) Pinkish  
(c) Red-purple      (d) Pinkish- red
53. In H&E stain what percentage of yellow eosin is used
- (a) 1.5 %      (b) 1 %  
(c) 2%      (d) None of these
54. Alum haematoxylene includes the following, except
- (a) Harris haematoxylene      (b) Delafield's hematoxylene  
(c) Cole hematoxylene      (d) Heidenhain's hematoxylene
55. Refractive Index of the mounting media should be
- (a) 1.53 and 1.54      (b) 1.52 and 1.56  
(c) 1.54 and 1.58      (d) All of these
56. Combined (fast) smears mean
- (a) Lateral vaginal wall scraping and vaginal pool smear  
(b) Combination of vaginal pool and cervical scraping  
(c) Cervical scraping and lateral vaginal wall scraping  
(d) All of these

57. For determination of malignant or benign in a cells- the following are important, except  
(a) Abnormal mitosis (b) Increased N:C ratio  
(c) Multinucleation (d) Anisonucleosis
58. Navicular Cells (Pregnancy) are, except  
(a) Vesicular nucleus (b) Oval  
(c) Ecentric nucleus (d) Thick borders
59. Nuclear changes due to radiation includes the following, except  
(a) Lysis (b) Karyorrhexis  
(c) Faint blue cytoplasm (d) Crenation of nuclear membrane
60. Body fluid for Cytological examination of high protein content should not be refrigerated more than-  
(a) 48 hours (b) 36 hours  
(c) 72 hours (d) None of these
61. Preservation of choice for sputum, Bronchial aspirate, bronchial washing is-  
(a) 95% Ethanol (b) 70% Ethanol  
(c) 50% Ethanol (d) 85% Ethanol
62. For routine transcutaneous FNAC of Palpable masses the choice of the needle is-  
(a) 24 gauge of 25 mm length (b) 25 gauge of 39 mm length  
(c) 21 gauge of 38 mm length (d) Both (a) and (b)
63. The common fixative for cell block preparation are, except  
(a) Bouin's fixative (b) Picric Acid fixative  
(c) 10% Formaline (d) Glutaraldehyde
64. Effect of alcohol fixation are, except  
(a) Enlarges the nucleus (b) Denature and precipitate protein  
(c) Coarsens cell structures (d) Sharpens nuclear chromatin pattern
65. OG<sub>6</sub> in Pap's stain is for  
(a) Stain metabolically active cells (b) Stain nucleoli  
(c) Cytoplasmic counter stain (d) None of these

*Direction to question no 66 & 67: what number comes next in the series?*

66. 81, 86, 79, ....., 77, 82  
(a) 84 (b) 82  
(c) 74 (d) 70
67. 11, 13, 17, 19, 23, ....., 31  
(a) 25 (b) 27  
(c) 29 (d) 26

**Direction to question No 68 & 69: choose the correct alternative from the given choices**

68.

1000	?	1728
2197	2744	3375
4096	4913	5832

- (a) 1231 (b) 1331  
(c) 1638 (d) 1650

69.

1	3
	3
1	4

10	5
	5
6	4

10	11
	?
13	15

- (a) 4 (b) 6  
(c) 7 (d) 9

**Directions to question No 70 & 71: Establish the relationship among the given pair of words and identify the pair that best illustrates a similar relationship from among the alternatives.**

70. Billy : Goat ::

- (a) cow : bull (b) lord : maid  
(c) man : woman (d) cow : calf

71. Chair : Table ::

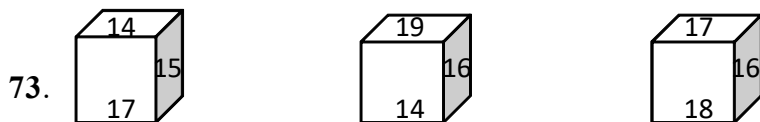
- (a) object : prop (b) son : father  
(c) car : scooter (d) pen : paper

**Directions for Question No 72: A large cube, painted blue on all six faces, is cut into 27 smaller identical cubes**

72. How many of the smaller cubes have no faces painted at all?

- (a) 10 (b) 1  
(c) 11 (d) 21

**Directions for Question No 73: Answer the following on the basis of the different cubes shown below**



Which number is on the opposite face to the number 16?

- (a) 17 (b) 14  
(c) 15 (d) 18

**Directions for Question No 74 & 75: find out the correct answer out of the four answer figures, if the problem figure continue in the same sequence**

Problem Figure

74. 

AB CD	CD AB	DA BC	BC DA	CD AB
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(a) 

DA BC
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(b) 

AB DC
-------

(c) 

AB CD
-------

(d) 

DA CB
-------

Problem Figures

75. 

+	- +	-	* /	=
X		*		/

(a) 

= ?
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(b) 

" ?
-----

(c) 

? *
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(d) 

? "
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