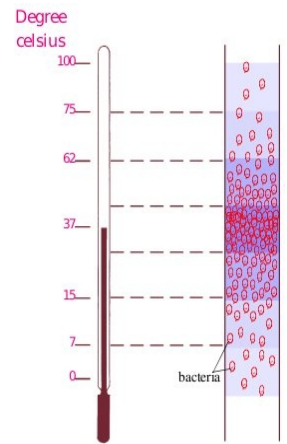


# 6. DEFENCE & TREATMENT

1. Defence mechanism in the human body
  - Skin, Ear wax, Tear with lysozyme, Saliva, Mucus, HCl in the stomach etc.
2. How is our skin prevent germs ?
  - The outer most layer – keratin- prevents entry of germs.
  - The oily sebum makes the skin 'water proof'
  - Both sebum and sweat have germicidal effect.
  - The covering of hairs protect from cold and heat.
  - The thin mucus membrane inside certain organs also prevents germs.

[When injuries or burns happen in skin, infection of germs may occur easily]

3. Different defence mechanism of our body against the germs ,which enter in the body.
  - Body increases the temperature (fever)
  - Inflammatory response(റിങ്ങൽ)
  - Phagocytosis (engulfing and digesting antigens)
  - Antibodies formation by lymphocytes
  - Blood clotting ....



4. How can we prevent some kinds of contagious diseases in advance?  
Through vaccination.

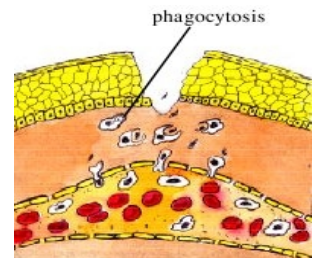
5. Bacterial diseases are common in man . Why ?  
Favourable temperature for bacterial multiplication is almost same as human body temperature (ie, 36.9° C )

6. For what purpose, our body raises temperature when germs enter the body ?  
It is to prevent rapid multiplication of bacteria.

7. How is the white blood cells control diseases ?  
Number of WBCs increases in the blood when germs enter the body. WBCs like monocytes, basophils and neutrophils destroy germs by engulfing them (phagocytosis).



8. Inflammation (swelling when a wound occurs) also is a defence mechanism. How ?  
When germs enter through a wound, that area swells due to the presence of maximum number of WBCs. Therefore, the minute pores in the blood capillaries enlarge in size so as to come out WBCs for phagocytosis.



9. Describe how clotting of blood happen ?
  - When there is a wound in the body, platelets and other cells form to an enzyme [thromboplastin] with the help of Ca<sup>2+</sup>.
  - This enzyme converts the prothrombin to thrombin, (whih is another enzyme)
  - Thrombin with fibrinogen forms Fibrin filaments.
  - RBCs and platelets get trapped in the network of fibrin filaments to form blood clot.

10. The method for preventing certain diseases in advance, is ..... ?  
Defence through vaccines..

11. Define vaccines.

Vaccines are medicine,containing pathogens (germs) or antibodies which are useful against certain diseases. (Small pox vaccine, the first vaccine, was tested by Dr. Edward Jenner)

Eg:- BCG [for tuberculosis]

DPT [ Diphtheria, Petrusis (റില്ലൻചുമ), Tetanus ]

OPV [ Polio / Salk vaccine ]

MMR [Mumps(മുണ്ടിനീര്), Measles, Rubella]

Hepatitis Vaccine [ കരൾവീക്കം ]

TT [ Tetanus]

12. How we get defence against diseases through vaccination ?

When a vaccine, which contains dead or alive or inactivated germs, is taken to our body, the lymphocytes recognize them and produce antibodies. For a long time these antibodies exist in our body and hence such diseases are prevented.

DISEASE	VACCINE	PECULIARITY
Small pox	Small pox vaccine	Active cowpox virus
Tuberculosis	BCG	Live but inactivated germs
Polio , Rabies	Salk vaccine Rabies vaccine	Dead germs
Tetanus	TT	Inactivated toxins

13. Immune disorders - Example

	DISEASE	REASON
Autoimmune disorders	Rheumatic fever	Due to reaction of lymphocytes against our body cells ,considering them as antigens
Hyper activity of immune system	Allergy, Asthma	Over reaction

14. Examples of body organs that can be donated ?

Eye, ear, liver, tendon, thymus, skin, blood vessels, pancreas, kidney, lungs, heart ....

15. Make apt slogans for the awareness of organ donation.

16. While conducting surgery of grafting organ , the receipient use immuno suppressants. Why?

The body of organ receiver may react against the grafted organ, as foreign body, by producing antibodies.

17. How can HIV destroy our immunity ?

HIV (Human Immuno deficiency Virus) destroy the lymphocytes and gradually decreases our immunity. Even minor diseases become critical. This condition is known as AIDS.

18. Mode of HIV transmission ?

- Through body fluids
- unprotected sexual relationship
  - unsterilized injection needles
  - blood transfusion
    - from pregnant mother to child
    -

19.

Modes of treatment	Founding fathers	Special features
Ayurveda	Charaka, Susrutha, Vagbhada ..... (Indian)	A life style to maintain the body fit. Majority of medicines are herbal.
Homeopathy	Samuel Hanniman (German)	Great concern for symptoms. Homeopathy considers the causative factor can itself effect the cure and when medicine is more diluted the more is its potency.
Allopathy- Modern medicine	Hippocrates (Greek)	Gives much importance to diagnosis, treatment, medicines etc. Different areas of specialisation, Modern equipments or instruments for treatment....

20. Specialisations in modern medicine

- |               |                                     |             |   |
|---------------|-------------------------------------|-------------|---|
| Paediatrics   | - treatment in children             | Cardiology  | - tretment of heart diseases            |
| Geriatrics    | - treatment in old age              | Oncology    | - cancer treatment                      |
| Ophthalmology | -eye treatment                      | Neurology   | - treatment to nervous system disorders |
| Urology       | - treatment of urinary organs       | Gynaecology | - gynaecological treatment              |
| Radiology     | - radiation treatment and diagnosis | ENT         | -treatment to ear, nase and throat      |

21. Techniques used to diagnose and treatment,

Stethoscope, Sphygmomanometer, Thermometer, Ultra-sound scan, MRI Scan, CT Scan, X-ray, ECG, EEG, Artificial valves, Bypass surgery, Angiogram, Endoscopy, Genetic engineering, Telemedicine, Nanotechnology ....

22. How are antibiotics important ?  
 Antibiotics are highly useful against microorganisms. They caused revolution in the treatment of diseases.  
 (The first antibiotic – penicillin – was invented by Alexander Flemming from the fungus-penicillium)

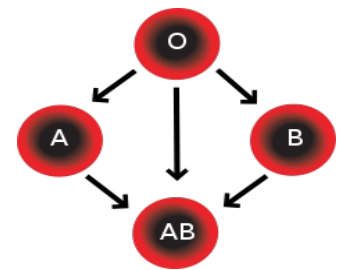
23. The use of antibiotics should be with great care. Why ?  
 - constant use may develop resistance against them in bacteria.  
 - destroy useful bacteria.  
 - reduces the level of certain vitamins  
 - some of them cause side-effects like allergy, vomiting, stomach problems, kidney disorder etc.

24. Instances which need first aid,  
 Burns, drowning, breathing problems, bone fracture, electric shock, animal biting ...

25. The proposer of blood groups ?  
 Carl Landsteiner

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BLOOD GROUP	ANTIGEN (aglutinogen)	ANTIBODY	RECEPIENT GROUP
A	A	Anti-B	A, AB
B	B	Anti-A	B, AB
AB	A, B	--	AB
O	--	Anti-A, Anti-B	A, B, AB, O



[Rh factor (antigen D) containing blood groups are +ve . Others are -ve ]

26. Why is that not possible to receive blood from all persons ?  
 If blood is not compatible, formation of antibodies occur so as to clot RBCs.

27. Prepare slogans for enhancing blood donation.

28. What is erythroblastosis foetalis ?

When a Rh (antigen D) negative mother conceives a RH positive child, there is a possibility of entering antigens in to mother's blood at the time of child birth,(when placenta is seperated). The lymphocytes in mother's blood produce antibodies against these antigens . They exist in her body and when the next foetus becomes Rh positive, these antibodies coagulates the RBCs of foetus. This condition is known as EBF

29. The defence mechanisms in plants ?

- Outer epidermis
- The outer coating of wax, cuticle etc.
- Thick bark
- Certain protiens, salycylic acid or ethylene form when germs enters
- Phenols, resins, gum etc.

30. Animals : Antibodies ; Plants : ..... ? (Plantibodies)

31. Example for plantibody ?

By transferring some genes of TMV to the tobacco plant helps the plant to create resistance against the TMV