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**General Science,
Human Health &
Disease**

Yearly

**CURRENT
AFFAIRS**

Compilation

- ❑ **Comprehensive Coverage of Last 2 Years Current Affairs for Prelims 2023**
- ❑ **Topic-wise Previous Year MCQs**
- ❑ **Practice MCQs to validate your learning**

Edited by

MANOJ K. JHA

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Contents

INTRODUCTION

1. DISEASES & HEALTH ISSUES 1

- Bird Flu in Kerala 1
- First-ever fungal Priority pathogens List (FPPL).....2
- Non-Communicable Diseases (NCDs) on rise and impacts3
- Global report on neglected tropical diseases 2023.....4
- Pradhan Mantri TB Mukht Bharat Abhiyaan.....5
- Leishmaniasis/Kalaazar disease and symptoms, efforts for eradication7
- Tomato flu8
- Mpox (formerly Monkeypox)8
- Langya Henipavirus (LAYV) eradication programme9
- African swine fever.....10
- Lassa fever10
- Neo COV virus relative to Corona virus.....11
- Poliomyelitis (POLIO) programme.....12
- Havana Syndrome and impacts13
- Dark Genome.....15
- Drugs to treat GNB1 Encephalopathy16
- Myositis and symptoms16
- Measles and eradication programme17
- Legionellosis18
- Antimicrobial Resistance recognised as a 'silent pandemic'20
- Vasculitis.....21
- Cancer Cases in India22
- Sickle Cell Disease (SCD) in India22
- Anthrax23
- Marburg Virus Disease24
- Lumpy Skin Disease25
- Detailed genome of the malaria mosquito vector26
- Depletion of particular brain tissue linked to chronic depression, suicide: Study.....27
- Environmental DNA (e-DNA)27
- Dementia cases to be increased by 197% by 2050: Study28
- Decline in 'amyloid-beta' causes Alzheimer's disease: Study28
- DBT-NII India's First Indigenous Tumour Antigen SPAG929
- Jumping' genes role in blood cancers29
- Kyasanur forest disease (KFD).....30
- Rise of Zika virus cases in India30
- Haemorrhagic septicaemia.....30
- WHO releases new roadmap to defeat meningitis31
- Rare Disease Day31
- World Leprosy Day.....31
- National Deworming Day32
- International Epilepsy Day33
- Reversal of type-2 diabetes in young people without medication.....33
- Banana Fungus.....34

PREVIOUS YEAR QUESTIONS36

PRACTICE MCQS39



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INTRODUCTION

Current affairs are “The Thread” which binds the various stages of the UPSC CSE together, it is also the ropeway to achieve success in this extremely challenging examination finally. Current affairs present themselves in varying forms in the examination- sometimes directly and sometimes indirectly. They reflect themselves in the prelims in terms of direct as well as applied questions

GS Score Prelims Sampoorna Current affair Yearly compilation for UPSC CSE prelims 2023 offers holistic Coverage of the last 1.5 years of Current affairs with a special focus on Preliminary examination along with practice questions to validate your learning. The compilation offers pointed and quick notes for effective revision saving you the effort to make separate notes. We have also provided Previous Years Prelims Question at the end of each sectionn to give insight into the type of questions that come in the exam and the way the UPSC expects the aspirants to prepare the topics. The practice questions not only simulate the pattern of the questions asked in the examination but also season you better to navigate through the challenges which one might encounter in the real examination.

These notes are not just quick and handy but covers almost everything that one requires to get a good hold on the area of Current Affairs. With this much effort, current affairs would become a cakewalk for you! This compilation provides lucid and effective content making your learning easy, effective and efficient. A hassle-free logically arranged bouquet of current affairs to master the news in sync with concepts. So that you shine on May 28th, 2023 and beam with confidence that you know it all and how. Face the examination with confidence and attempt to win.

This edition covers current affairs from October 2021 to January 2023. We will release the second edition in the 1st week of May, covering the current affairs of February to April.

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DISEASES & HEALTH ISSUES

TYPES OF DISEASE

There are four main types of disease:

- **Infectious diseases:** Infectious diseases are caused by pathogens – microorganisms that enter the body and then reproduce. They can easily be spread through direct or indirect contact.
 - ▶ **Example:** Typhoid, smallpox, cholera, diphtheria, influenza (flu), measles, common cold.
- **Deficiency diseases:** Deficiency diseases are caused by dietary deficiency. This means the body is deprived of one or more essential vitamins or minerals.
 - ▶ **Example:** Scurvy, Rickets, Osteoporosis
- **Hereditary diseases:** **Hereditary diseases**, also known as inherited diseases or **genetic disorders**, are defined and categorised as being a set of genetic diseases that are caused by **changes** in one's genetic material (**DNA**). These diseases are then transmitted from generation to generation, or in other words, they are **inherited** from **parents** to their **children**.
 - ▶ **Example:** skin cancer, hypertrophic cardiomyopathy, arthritis, sudden arrhythmic death syndrome (SADS), marfan syndrome, breast cancer, prostate cancer, lung cancer, muscular dystrophy
- **Physiological diseases:** Physiological diseases are caused by body malfunction.
 - ▶ **Example:** Diabetes, Cancer, Hypertension, Heart disease

1. Bird Flu in Kerala

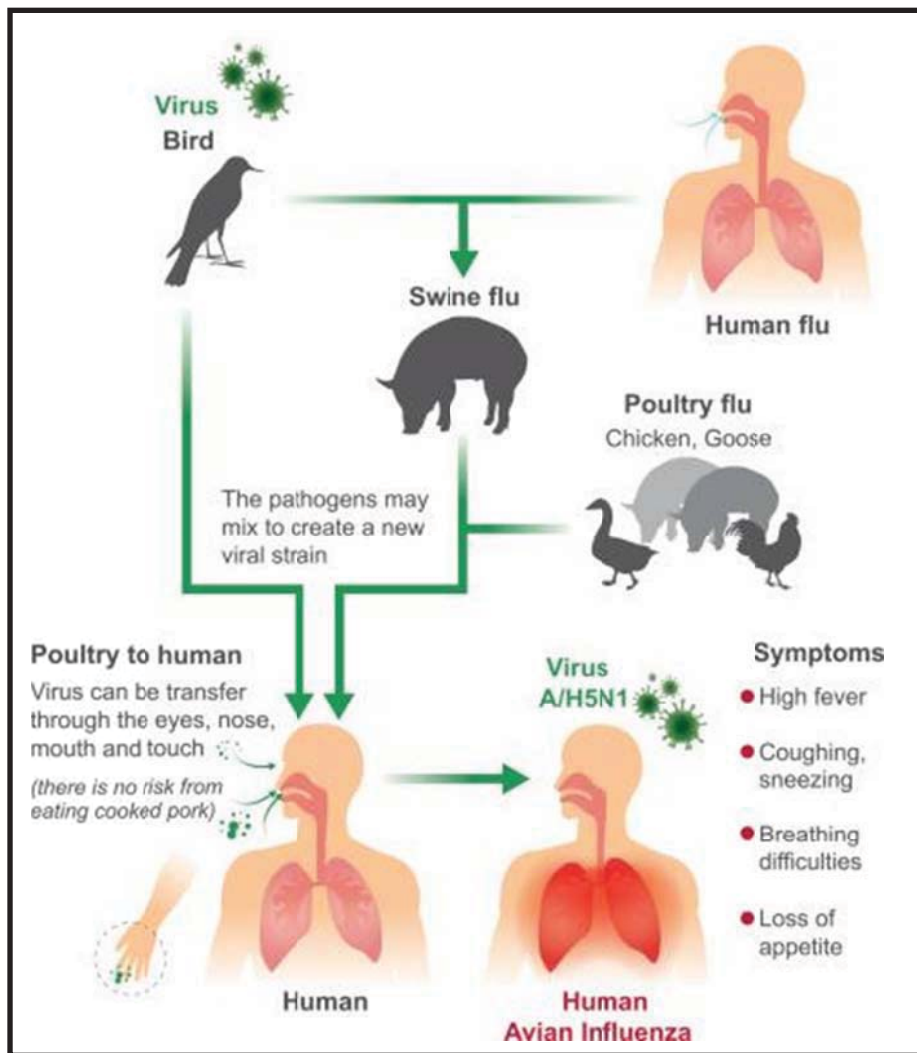
Context: Around 1,800 chickens died of infection at poultry farm in Kozhikode, Kerala.

What is bird flu?

- **Avian influenza or Bird Flu** refers to the disease caused by infection with avian (bird) influenza (flu) **Type A** viruses.
- These viruses occur naturally among wild aquatic birds worldwide and can infect domestic poultry and other bird and animal species.
- It is a **zoonotic disease** that affects wild and domestic bird populations.
- **Avian flu viruses** do not normally infect humans.

Spread:

- The disease makes its presence felt particularly during winter in most of India and other parts of the globe.
- This is because, as **wintering, migratory birds arrive** and bring pathogens with them.
- **Temperature is also a factor:** the virus thrives better in cooler climates, thus enabling its spread during winter.



2. First-ever fungal Priority pathogens List (FPPL)

Context: Recently, WHO published a report highlighting the first-ever list of fungal “Priority pathogens” – a catalogue of the 19 fungi that represent the greatest threat to public health.

About the list:

- The WHO **fungal priority pathogens list (FPPL)** is the first global effort to systematically prioritize fungal pathogens, considering the unmet research and development (R&D) needs and the perceived public health importance.
- The 19 Fungi identified as categorically as fungi of concern.

- **Objective:** The WHO FPPL aims to focus and drive further research and policy interventions to strengthen the global response to fungal infections and antifungal resistance.
- Fungal pathogens are a major threat to public health as they are becoming increasingly common and resistant to treatment with only four classes of antifungal medicines currently available.
- **The WHO FPPL list is divided into three categories:**
 - ▶ **Critical priority:** It includes *Candida auris*, which is a highly drug-resistant fungi, *Cryptococcus neoformans*, *Aspergillus fumigatus*, and *Candida albicans*.
 - ▶ **High priority:** It includes a number of other fungi from the *Candida* family as well as others such as *Mucorales*, a group containing “black fungus”, an infection which rose rapidly in seriously ill people, particularly in India, during Covid-19.
 - ▶ **Medium priority:** It includes a number of other fungi, including *Coccidioides* spp and *Cryptococcus gattii*.
- The fungal pathogens in each priority category are so ranked primarily due to their public health impact and/or emerging antifungal resistance risk.

Fungal Infections:

- There are many types of fungal infections. Some of the most common fungal infections are those of the skin, nails, and mucous membranes. Examples include:
- **Ringworm (also known as tinea):** a fungal infection of the skin that can occur on your scalp, on your feet (athlete’s foot), in your groin area (jock itch), and on other areas of your body
- **Nail fungus:** an infection that typically affects your toenails but can also affect your fingernails
- **Vaginal yeast infection:** an infection that occurs due to the overgrowth of *Candida* yeast in and around the vagina
- **Oral thrush:** a condition in which *Candida* yeast overgrows in your mouth.

3. Non-Communicable Diseases (NCDs) on rise and impacts

Context: Recently, the **World Health Organisation (WHO)** released its report “Invisible Numbers – The True Extent of Non-communicable Diseases and What To Do About Them”, which stated that every two seconds, one person under the age of 70 dies of a **non-communicable disease (NCD)** with 86% of those deaths occurring in low- and middle-income countries.

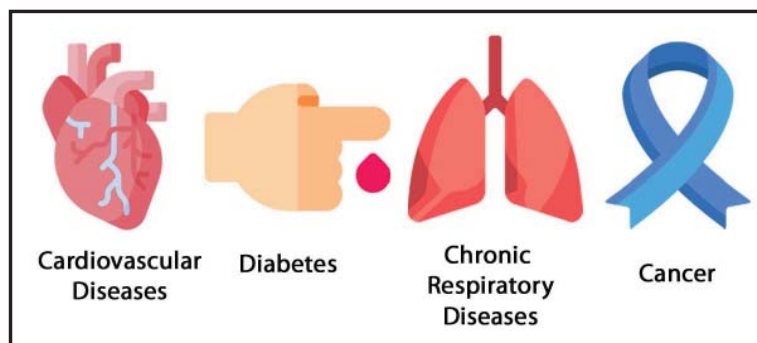
What are Non-communicable diseases?

- Non-communicable diseases are diseases that are not spread through infection or through other people, but are typically caused by unhealthy behaviours.
- They are primarily **cardiovascular diseases, cancers, chronic respiratory diseases and diabetes.**
- **Causes:** High levels of stress, increased incidences of diabetes, blood pressure, smoking, excessive consumption of alcohol, lack of exercise, lack of proper sleep.

Global scenario:

- Non-communicable diseases (NCDs) kill 41 million people each year, equivalent to 74% of all deaths globally.

- Each year, 17 million people die from a NCD before age 70; 86% of these premature deaths occur in low- and middle-income countries.
- Of all NCD deaths, 77% are in low- and middle-income countries.



- Cardiovascular diseases account for most NCD deaths, or 17.9 million people annually, followed by cancers (9.3 million), chronic respiratory diseases (4.1 million), and diabetes (2.0 million including kidney disease deaths caused by diabetes).
- These four groups of diseases account for over 80% of all premature NCD deaths.
- Situation in India:** In India, one in every four people has a risk of dying from an NCD (i.e., cardiovascular, stroke, cancer, diabetes, etc.) before reaching the age of 70 years.

National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)

- NPCDCS was launched in 2010 with focus on strengthening infrastructure, human resource development, health promotion, early diagnosis, management and referral.

4. Global report on neglected tropical diseases 2023

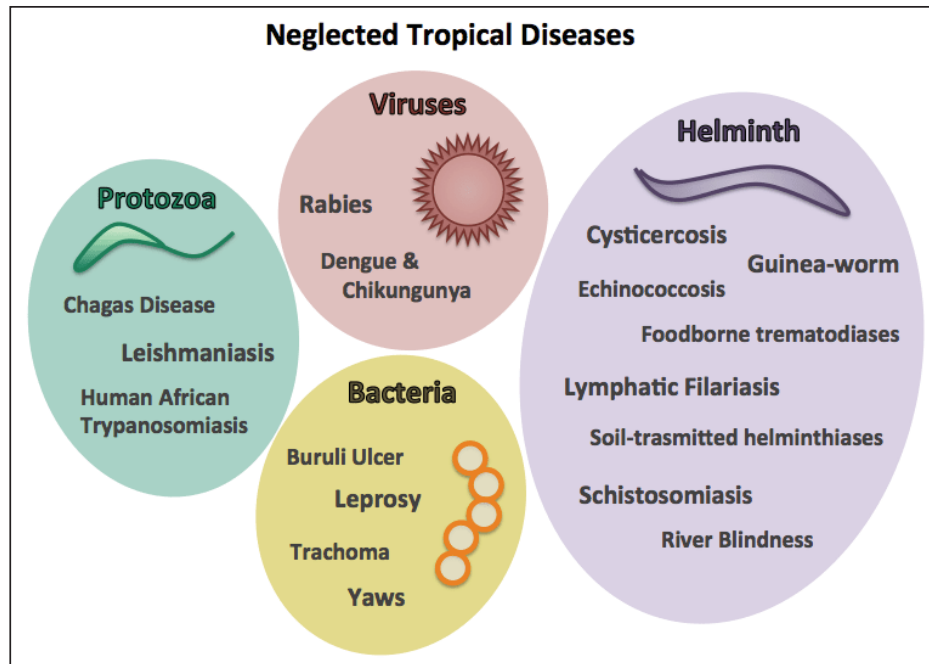
Context On World Neglected Tropical Disease (NTD) Day (January 30, 2023), WHO releases a new progress report 'the *Global report on neglected tropical diseases 2023*'.

Key-highlights of the Report

- NTDs continue to disproportionately affect the poorest members of the global community, primarily in areas where water safety, sanitation and access to health care are inadequate.
- Although as many as 179 countries and territories reported at least one case of NTDs in 2021, 16 countries accounted for 80% of the global NTD burden.
- Around 1.65 billion people were estimated to require treatment for at least one NTD, globally.
- The new progress report shows that the number of people requiring NTD interventions fell by 80 million between 2020 and 2021, and eight countries were certified or validated as having eliminated one NTD in 2022 alone.
- As of December 2022, 47 countries had eliminated at least one NTD and more countries were in the process of achieving this target.

What are Neglected Tropical Diseases (NTD)?

- NTDs are a group of infections that are most common among marginalised communities in the developing regions of Africa, Asia and the Americas. They are caused by a variety of pathogens such as viruses, bacteria, protozoa and parasitic worms.



- ▶ NTDs are especially common in tropical areas where people do not have access to clean water or safe ways to dispose of human waste.
- ▶ Examples of NTDs are: **snakebite envenomation, scabies, yaws, trachoma, Leishmaniasis and Chagas disease** etc.
- These diseases generally receive less funding for research and treatment than malaises like tuberculosis, HIV-AIDS and malaria.

NTDs in India

- India has the world's largest absolute burden of at least 10 major NTDs, including **hookworm, dengue, lymphatic filariasis, leprosy, visceral leishmaniasis or kala-azar and rabies**.
- Of the 12-13 NTDs existing in India **only dengue, rabies, snakebite and leprosy are notifiable**
- The most common NTDs in India: **Lymphatic Filariasis, Visceral Leishmaniasis, Rabies, Leptospirosis, Dengue and Soil-Transmitted Helminth Infections (STH)**.

5. Pradhan Mantri TB MukT Bharat Abhiyaan

Context: The President of India launched the Pradhan Mantri TB MukT Bharat Abhiyaan.

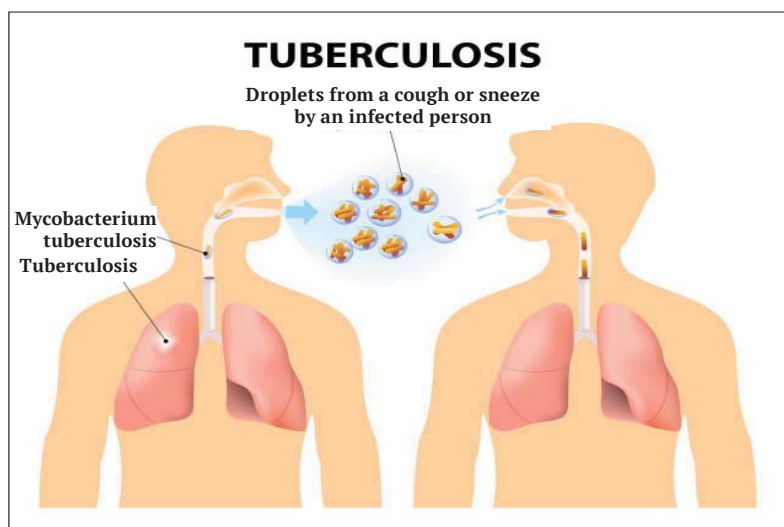
About Pradhan Mantri TB MukT Bharat Abhiyaan

- Pradhan Mantri TB MukT Bharat Abhiyan, Ni-kshay 2.0, is a campaign to mobilize and render community support for persons with TB.
- The aim of the campaign is to eliminate TB by 2025.
- **Important Components:**
 - ▶ **Ni-kshay Mitra portal:** The Ni-kshay Mitra portal provides a platform for donors to provide various forms of support to those undergoing TB treatment.
 - The donors, called **Ni-kshay Mitras** who can be a wide range of stakeholders from elected representatives, political parties, to corporates, NGOs, and individuals.

- ▶ **The Nikshay Ecosystem:** It is the National TB information system which is a one-stop solution to manage information of patients and monitor program activity and performance throughout the country.
- ▶ **Nikshay Poshan Yojana (NPY):** This scheme is aimed at providing financial support to TB patients for their nutrition.

Data on prevalence of TB:

- TB causes the largest number of deaths among all other infectious diseases in India.
- India has a little less than 20 percent of the world's population, but has more than **25 percent of the total TB patients of the world.**
- India is committed to eliminating tuberculosis from the country by 2025, five years ahead of the global target by the **World Health Organisation (WHO)** i.e. 2030.



What is Tuberculosis (TB)?

- Tuberculosis (TB) is a **bacterial infection** spread through inhaling tiny droplets from the coughs or sneezes of an infected person.
- It mainly **affects the lungs**, but it can affect any **part of the body**, including the **tummy (abdomen), glands, bones and nervous system.**

Vaccination for TB:

- The **BCG vaccine** offers protection against TB, and is recommended on the **NHS** for babies, children and adults under the age of 35 who are considered to be at risk of catching TB.
- The BCG vaccine is not routinely given to anyone over the age of 35 as there's no evidence that it works for people in this age group.

Important initiatives

- **National Tuberculosis Elimination Programme:** The programme is aligned with the ambitious goal; the programme has been renamed from the Revised National Tuberculosis Control Programme (RNTCP) to National Tuberculosis Elimination Programme (NTEP).
- **TB Harega Desh Jeetega Campaign:** Launched In September 2019 it is showcasing the highest level of commitment for the elimination of TB.
- **Saksham Project:** It is a project of the Tata Institute of Social Sciences (TISS) that has been providing psycho-social counselling to DR-TB patients.

6. Leishmaniasis/Kalaazar disease and symptoms, efforts for eradication

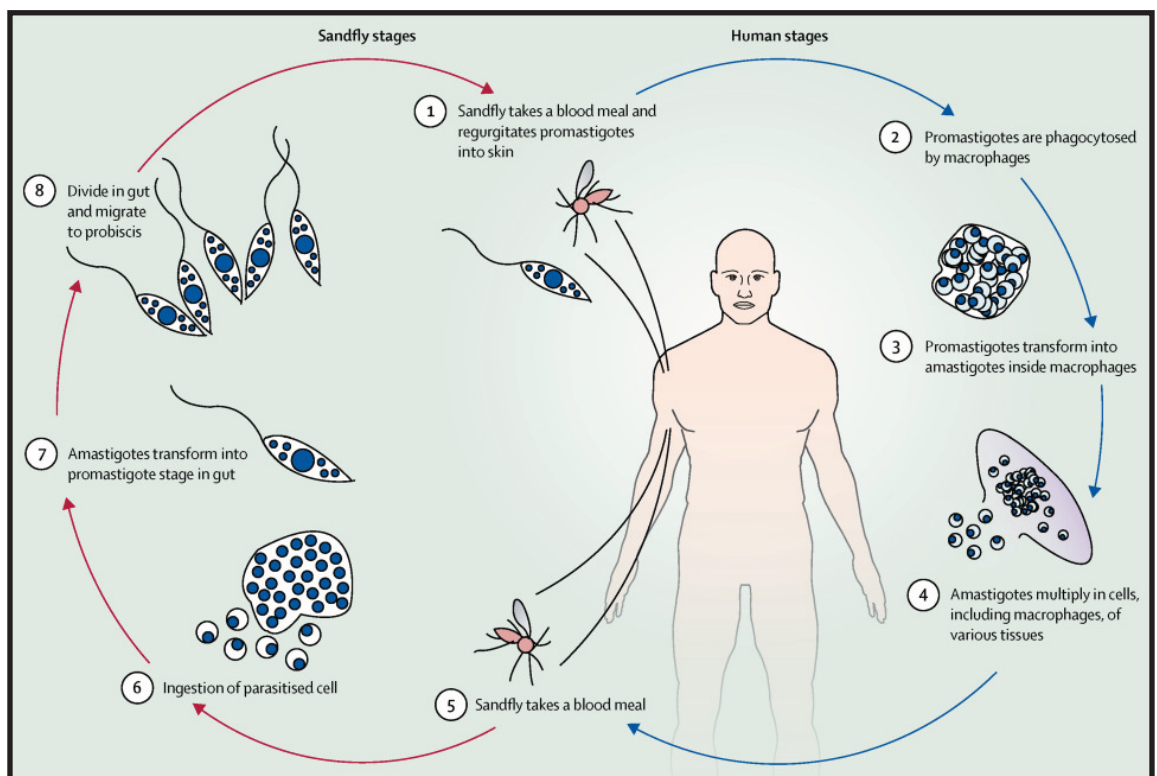
Context: Recently, informed by the **Ministry of Health** that the **Kala-azar cases** in India fell to 834 in 2022 from 44,533 in 2007 – a **98.7 percent decline**.

About KALA-AZAR:

- It is a **chronic and potentially fatal parasitic disease** of the internal organs, particularly the **liver, spleen, bone marrow and lymph nodes**.
- **Caused by:** It is caused by bites from female **phlebotomine sandflies** – the vector (or transmitter) of the **leishmania parasite**.
 - ▶ The sand flies feed on animals and humans for blood, which they need for developing their eggs.
- **Spread:** It spreads due to infection by the parasite called **Leishmania donovani**.
 - ▶ *Leishmania donovani* is transmitted by sandfly bites in parts of **Asia (primarily India), Africa (primarily Sudan), South America (primarily Brazil), Europe (primarily in the Mediterranean region)** and in **North America**.
- **Fatality rate:** According to WHO, if the disease is not treated, the fatality rate in developing countries can be as high as 100% within 2 years.

Naming

- The term "kala-azar" comes from India where it means black fever.
- It is also known as Indian leishmaniasis, visceral leishmaniasis, leishmania infection, dum dum fever, black sickness, and black fever.



Symptoms of Kala azar:

- Fever, loss of appetite (anorexia), fatigue, enlargement of the liver, spleen and nodes and suppression of the bone marrow.

Diagnosing Kala azar:

- The first oral drug found to be effective for treating kala-azar is **miltefosine**.
- The most common method of diagnosing kala azar is by **dipstick testing**. However, this method is highly problematic.

Treatment

The first-line treatment for kala-azar in India is injectable **liposomal amphotericin B** 10mg/kg body weight

7. Tomato flu

Context: A new virus known as tomato flu, or tomato fever, has emerged in India in the state of Kerala in children younger than 5 years.

About the disease:

- Tomato flu is a viral illness that starts with rashes, blisters or ulcers in the mouth.
- **Type:** Very Contagious
- **Caused by:** The infection is caused by **Coxsackievirus A16**.
- **Target:** It primarily targets young children between 1 to 10 years of age and adults with weak immunity.
- **Symptoms:** Its symptoms ranges to;
 - ▶ Fever, fatigue, and body aches initially, and some patients also report rashes on the skin.
- **Treatment:** Tomato flu is a **self-limiting illness** and no specific drug exists to treat it.



8. Mpox (formerly Monkeypox)

Context: The Health Ministry has mentioned that the States should aware, alert, and ready to tackle other public health threats such as monkey-pox which is on the rise globally.

Background:

- Monkeypox is now known as mpox (name changed by WHO).
- **Type:** viral zoonotic disease
- **Caused by:** Mpox is a **rare disease** caused by infection with the **mpox virus**.
- **Comparison with Smallpox:** The mpox virus is in the same family of viruses as the smallpox virus. But mpox is less contagious than smallpox. And its disease causes milder symptoms and is usually not fatal.
 - ▶ Orthopoxvirus genus, which also includes variola virus (the cause of smallpox)
- **Symptoms:** Initial symptoms of mpox include: fever, headache and body aches, fatigue, and swollen lymph nodes, followed by a rash of lesions on the skin.
- **Treatment:** While there are **no specific treatments** for monkey-pox infections, **antiviral drugs licensed for smallpox use are effective and can be used against monkey-pox**.

- The virus was first discovered in 1958 in two outbreaks of a pox-like disease among colonies of research monkeys.
- The first human case of mpox was recorded in 1970 in the Democratic Republic of the Congo (DRC). The disease is endemic in central and western Africa.
- Recently, an on-going outbreak of the viral disease monkey-pox was confirmed in May 2022.

- **Transmission:** Human-to-human transmission of mpvx occurs through direct contact with body fluids, lesions, prolonged face-to-face contact, including sexual contact, and indirect contact with contaminated clothing or bedding.

Mode of transmission:

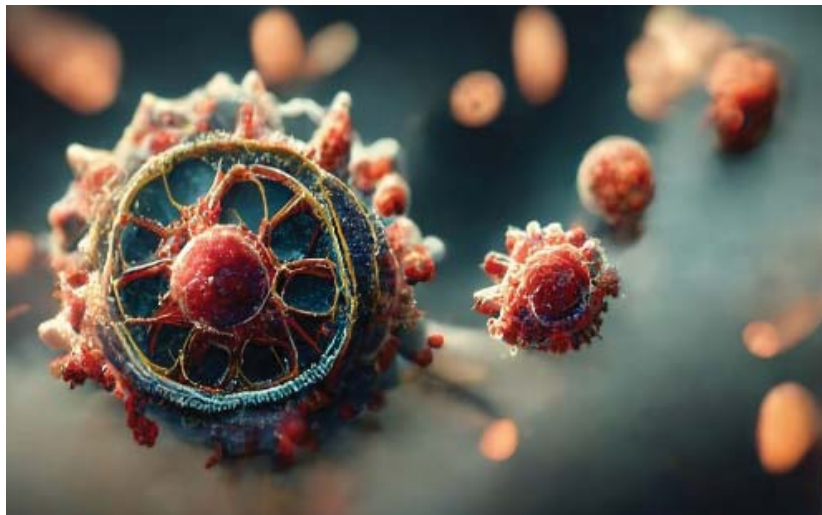
- **Human-to-human transmission** is known to occur primarily through large respiratory droplets generally requiring prolonged close contact.
- It can also be transmitted through direct contact with body fluids or lesion material, and indirect contact with lesion material, such as through contaminated clothing or linens of an infected person.
- **Animal-to-human transmission:** may occur by bite or scratch of infected animals like small mammals including rodents (rats, squirrels) and non-human primates (monkeys, apes) or through bush meat preparation.

9. Langya Henipavirus (LAYV) eradication programme

Context: In 2022, a research study in China reported the emergence of **Langya henipavirus (LayV)**, a novel zoonotic henipavirus.

About novel Langya henipavirus (LayV):

- **Origin:** This newly discovered Henipavirus, may have come from animals, and is associated with some febrile cases.



- **Symptoms:** Fever, fatigue, cough, anorexia, myalgia, and nausea.
- **Treatment:** There is currently no vaccine or treatment for Henipavirus and the only treatment is supportive care to manage complications.
- **Other similar virus:**
 - ▶ Nipah and Hendra virus also belong to the same genus, henipavirus, from the Paramyxoviridae family.

Paramyxoviridae is a family of single-stranded Ribonucleic acid (RNA) viruses that cause different types of viral infections.

What makes a virus zoonotic?

- A zoonotic disease is defined as an **infectious disease** transmitted between species; either from animals to humans, or from humans to animals.
- Examples of zoonotic viruses include COVID-19, **monkeypox and Hendra virus (HeV)**.

10. African swine fever

Context: According to **United Nations Food and Agriculture Organization (FAO) report** has caused the deaths of more than 3.7 million pigs across a vast swathe of Asia, primarily in its east and south-east, where pork is the primary meat staple.

What is African swine fever?

- African swine fever (ASF) is a **highly contagious viral disease** of domestic and wild pigs, whose mortality rate can reach 100%.
- **Caused by:** It is caused by a large DNA virus of the *Asfarviridae* family, which also infects ticks of the genus
- **Similarity with classical swine fever:** Although signs of ASF and classical swine fever (CSF) may be similar, the ASF virus is unrelated to the CSF virus.
- The virus causes a **hemorrhagic fever** with high mortality rates in domestic pigs.
- **Transmission:**
 - ▶ Direct contact with infected domestic or wild pigs: This **trans-boundary animal disease (TAD)** can be spread by live or **dead pigs, domestic or wild, and pork products**.
 - ▶ Indirect contact, through ingestion of contaminated material (e.g. food waste, feed, or garbage).
 - ▶ Contaminated fomites or biological vectors (soft ticks of the genus *Ornithodoros*) where present.

11. Lassa fever

Context: The Nigeria Centre for Disease Control (NCDC) has said that about 189 deaths were recorded in the country in 2022 from Lassa fever.

About Lassa fever:

- Lassa fever is a **viral haemorrhagic disease** caused by the **Lassa virus** which naturally infects the widely distributed house rat.
 - ▶ Lassa virus is a **single-stranded RNA hemorrhagic fever virus** from the family **Arenaviridae**.

Lassa Fever virus is a **single-stranded, enveloped RNA virus** that belongs to the genus **Mammarenavirus**, of the **Arenaviridae family of viruses**. The natural reservoir for Lassa fever virus is the **Mastomys natalensis rat**.

- **Type:** animal-borne, or zoonotic, acute viral illness.
- **Transmission:** It is transmitted through the urine and droppings of infected rats found in most tropical and subtropical countries in Africa. It is endemic in parts of West Africa including Sierra Leone, Liberia, Guinea and Nigeria.

- **Communicable:** They are able to contaminate anything they come in contact with. The Lassa virus spreads through human to human contact with tissue, blood, body fluids, secretions or excretions.
- **Symptoms:** A fever is usually the first symptom followed by headaches and coughing, nausea and vomiting, diarrhoea, mouth ulcers and swollen lymph glands.
- **Treatment:** Lassa fever can be fatal, but it can be treated if diagnosed early.



LASSA FEVER



What is Lassa fever?

Lassa fever is a viral illness that typically occurs in West Africa.

How is Lassa fever spread?

The Lassa virus is transmitted to humans mainly through handling rats, food or household items contaminated by rats' urine and faeces.

The virus can spread between people through direct contact with the body fluids of a person infected with Lassa fever, as well as contaminated bedding and clothing.



You cannot get Lassa fever through hugging, shaking hands or sitting near someone.



What are the symptoms of Lassa fever?

Symptoms of Lassa fever typically occur 2-21 days after coming into contact with the virus. Many people who are infected do not show symptoms.

- Fever
- Headache
- Sore throat
- Chest and muscle pain
- Nausea, vomiting and diarrhoea
- Facial swelling
- In severe cases, bleeding from the mouth, nose, vagina or gastrointestinal tract

12. Neo COV virus relative to Corona virus

Context: A type of coronavirus known as NeoCov has been making headlines around the world, with some comparing it to the SARS-CoV-2 virus which causes COVID-19.

What is NeoCov?

- NeoCov is not SARS-CoV-2 but associated with the MERS Coronavirus (Middle East Respiratory Syndrome coronavirus).
- It is a zoonotic virus.

Coronavirus

SARS-CoV-2, MERS, and NeoCov all belong to a group of viruses known as coronaviruses. There are hundreds of coronaviruses, most of which circulate among animals such as pigs, camels, bats and cats. Some coronaviruses can infect humans and cause mild cold-like symptoms. Only three coronaviruses have been known to cause serious symptoms in humans. These are:

- **Severe Acute Respiratory Syndrome (SARS)** emerged in 2002 and resulted in a highly contagious and potentially life-threatening form of pneumonia.
- **Middle East Respiratory Syndrome (MERS)** was originally transmitted to humans from camels. It was first identified in 2012 and continues to cause sporadic and localised outbreaks.
- **COVID-19:** The SARS-CoV-2 virus causes coronavirus disease 2019 (or COVID-19).

13. Poliomyelitis (POLIO) programme

Context: The Global Polio Eradication Drive prepared a list of 30 countries including the U.S, where either imported wild or vaccine-derived poliovirus (VDVP), or circulating VDPV has been identified.

About the disease:


- Poliomyelitis, commonly called polio, is a **highly infectious viral disease** that can leave patients disabled, and in some cases, even prove fatal.

What is polio

- Poliomyelitis (polio) is a highly infectious viral disease, mainly affecting children
- According to WHO, the virus is transmitted from person-to-person, mainly through the faecal-oral route

STRAINS

- There are three types of polio virus strains — P1, P2 and P3
- P2 was eradicated globally in 1999
- India attained a polio free status in 2014 after successfully eliminating the wild P1 and P3 strains



VACCINATION SCHEDULE

OPV: At 6 weeks, 10 weeks and 14 weeks

IPV: At 6 weeks and 14 weeks

OPV booster: Between 16 and 24 months

- The virus enters the nervous system and can cause total paralysis in just a few hours.
- **Symptoms** - Initial symptoms of the infection include fever, fatigue, headache, vomiting, stiffness of the neck and pain in the limbs.
- **Treatment** - There is no known cure for polio. It can only be prevented by way of vaccination.

Types of Polio virus –

- Wild poliovirus (WPV) has three known strains – **types 1, 2, and 3** – each with a slight difference in structure.
- Immunity to one type does not guarantee immunity to others.
 - ▶ **Type 1 WPV** - remains in circulation and endemic to **Pakistan and Afghanistan**.
 - ▶ **Type 2 WPV** - declared eradicated in September 2015.
 - ▶ **Type 3 WPV** - declared eradicated in October 2019.
- **Spread of the disease** - The polio virus is most commonly spread through the faecal-oral route.
 - ▶ It can also spread through contaminated water or food.
 - ▶ The virus multiplies in the host's intestines.
- **Susceptible age group** - Most polio cases are recorded in children less than five years of age, but all unvaccinated people can contract the disease.

Government Interventions:

- The Government of India launched the **National Immunisation Day (NID)**, the Pulse Polio immunisation programme in 1995. It aims to administer polio drops to all children **less than 5 years**.
- Additionally, Sub-National Immunisation Days are also conducted every year in high-risk areas.

Treatment and vaccines:

- There are two types of vaccines – **oral poliovirus vaccine (OPV) and inactivated poliovirus vaccine (IPV)**.
 - ▶ **Inactivated poliovirus vaccine (IPV)**: IPV consists of **inactivated (killed) poliovirus strains** of all three types.
 - The vaccine is administered through an intramuscular or intradermal injection.
 - It produces antibodies in the blood against all three types of the poliovirus.
 - ▶ **Oral poliovirus vaccine (OPV)**: OPV uses a weakened (also called attenuated) form of poliovirus, which can either be one strain or a combination. OPVs are administered orally; they are more suitable for mass vaccination.

WHO removed India from its list of endemic countries with active poliovirus transmission and **India is polio free.**

14. Havana Syndrome and impacts

- Context:**
- A US intelligence officer travelling with CIA director William Burns has reported symptoms of Havana Syndrome while the two were in India earlier this month.
 - This is the first instance of the phenomenon being reported in India, at least on record, and could have diplomatic implications.

About the disease:

- Havana Syndrome refers to a set of mental health symptoms that are said to be experienced by US intelligence and embassy officials in various countries.
- It typically involves symptoms such as hearing certain sounds without any outside noise being present, nausea, vertigo and headaches, memory loss and issues with balance.
- As the name suggests, it traces its roots to Cuba.
 - ▶ Back in 2016, reports first emerged of US diplomats and other employees of the government falling ill in Havana, the capital of Cuba.
 - ▶ The patients said they heard strange sounds and experienced odd physical sensations in their hotel rooms or homes, and had symptoms of nausea, severe headaches, fatigue, dizziness, sleep problems and hearing loss.
 - ▶ This mysterious illness came to be called the “Havana Syndrome”.

What is Havana syndrome?

The medical mystery named for the Cuban city where U.S. diplomats first experienced sudden, debilitating symptoms in 2016 has been reported by Americans serving in several other countries.

Acute symptoms (often occurring suddenly) may include:

Loud sounds (sometimes described as chirping, clicking or screeching) and pain in one or both ears; many felt the sensations came from a particular direction or were felt when in a specific location

Tinnitus, hearing loss

Intense pressure or vibration inside the head

Difficulty with memory or concentration

Visual disturbances

Nausea

Unsteady gait, loss of balance, vertigo/dizziness

Chronic symptoms (can last weeks, months or longer) may include:

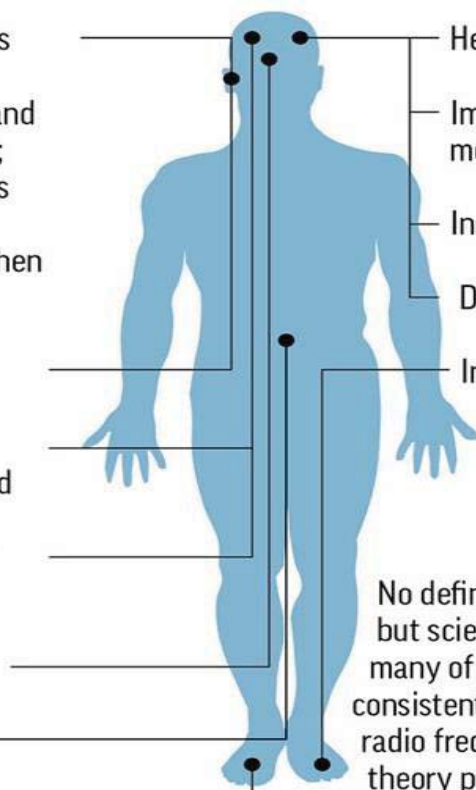
Headache

Impaired concentration, memory loss

Insomnia

Depression

Impaired balance



No definitive cause has been found, but scientific studies have noted many of the acute symptoms are consistent with exposure to directed radio frequency (RF) energy. One theory posits the use of RF energy by a U.S. adversary as a weapon or a tool of espionage.

Source: National Academy of Sciences



15. Dark Genome

Context: A team from the University of Cambridge set out to find whether new genes emerge in the **genome of living organisms** or they are present in the dark genome.

The big black box (the dark genome)

As much as **98 percent** – of DNA do not code for proteins.

- **Deoxyribonucleic acid (DNA)** is a complicated molecule. DNA codes RNA (ribonucleic acid) that, in turn, codes for protein.
 - ▶ But of these, some – especially **long noncoding RNAs (lncRNAs)** – don't do that; it's unclear what exactly they do at all.
- In simple terms, the human genome contains “**dark**” **gene regions**.
- These genes cannot be **adequately assembled** or **aligned** using **standard short-read sequencing technologies**.
- This is the big black box in understanding of our own genome.

Human Genome Project

- The Human Genome Project was a landmark global scientific effort whose signature goal was to generate the first sequence of the human genome.

First complete, gapless sequence of a human genome

- Scientists have published the **first complete, gapless sequence of a human genome**, two decades after the **Human Genome Project** produced the **first draft human genome sequence**.
- The genetic sequence made available in 2003 from the Human Genome Project, an international collaboration between 1990 and 2003, contained information from a region of the human genome known as the
- Here, the chromosome is rich in genes, and the DNA encodes for protein.
 - ▶ The 8% that was left out was in the area called heterochromatin.
- The new reference genome, called **T2T-CHM13**, includes highly repetitive DNA sequences found in and around the telomeres (structures at the ends of chromosomes) and the centromeres (at the middle section of each chromosome).
- The new sequence also reveals long stretches of DNA that are duplicated in the genome and are known to play important roles in evolution and disease.

Applications:

- The term ‘dark genome’ also applies to **protein-coding genes** whose functions have not yet been explored.
 - ▶ This category includes some recently discovered genes such as SLX4IP, involved in glucose metabolism, HSF2BP, associated with coronary artery diseases, or ELFN, involved in attention-deficit/hyperactivity disorder.
- A holistic analysis of the protein-coding portion of our dark genome may offer interesting therapeutic opportunities for drug development.

16. Drugs to treat GNB1 Encephalopathy

Context: Researchers from India, Israel, US trying to develop drug to treat rare disease ‘GNB1 Encephalopathy’.

About the disease:

- GNB1 Encephalopathy is a kind of **brain disease** or **neurological disorder** which affects individuals in the foetus stage.
- **Symptoms:** Delayed physical and mental development, intellectual disabilities, frequent epileptic seizures, is among the early symptoms of the disease.
- **Cause:** A single nucleotide mutation in the GNB1 gene that makes one of the G-proteins, the “Gβ1 protein” causes this disease.
- **Effects:**
 - ▶ This mutation affects the patient since they are a foetus.
 - ▶ Children born with GNB1 mutation experience **mental and physical developmental delay**, epilepsy (abnormal brain activity), movement problems.
- **Occurrence:**
 - ▶ To date, less than a hundred cases have been documented worldwide.
 - ▶ However, the actual number of affected children is probably much greater as diagnosis is not widely available since it requires a sophisticated and expensive procedure.

Biology behind the disease:

- Every cell in the human body has a wide variety of signalling molecules and pathways that help in communicating with other cells and within it. The major signalling mechanism used by cells is ‘G-Protein Coupled Receptor’ (GPCR) signalling.
- GPCR is a receptor that receives a signal (e.g. a hormone, light, and neurotransmitter) from the outside of the cell and transduces it to the inside of the cell.

17. Myositis and symptoms

Context: Myositis was seen in news frequently.

About the disease:

- Myositis is the name for a group of rare conditions.
- **Symptoms:** The main symptoms are weak, painful or aching muscles. This usually gets worse, slowly over time.
- Myositis is usually caused by a **problem with immune system, where it mistakenly attacks healthy tissue.**

Causes:

Some researchers believe that myositis may also be caused by:

- Autoimmune diseases such as rheumatoid arthritis and lupus
- Viruses such as the common cold, flu, and HIV
- Drug toxicity

Types of Myositis:

There are generally **three types** of myositis –

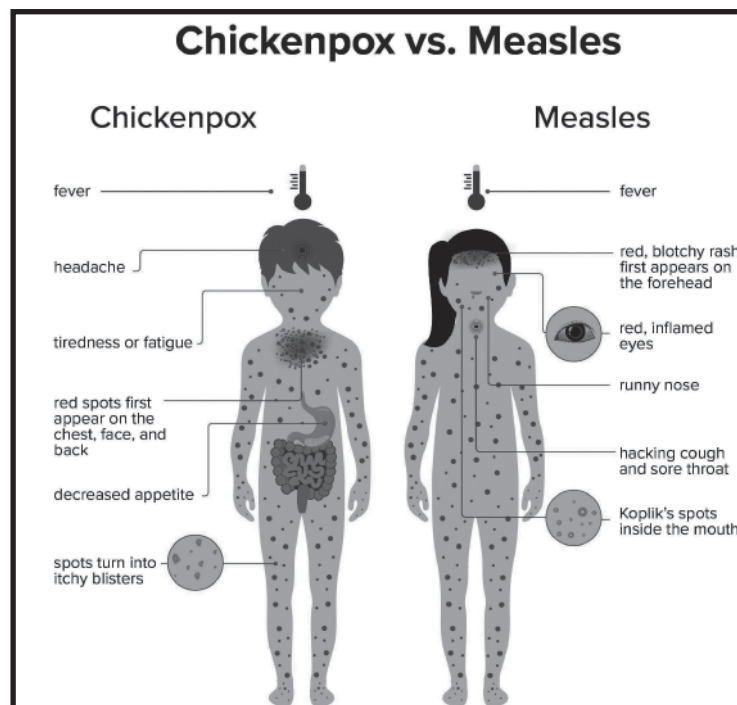
- **Polymyositis** – It affects multiple muscles at the same time. It usually causes symptoms in muscles or near the centre of the body. Polymyositis develops gradually over time. It mostly affects adults.
- **Dermatomyositis** – It is a form of myositis that affects skin in addition to muscles. If it affects children, it is known as juvenile dermatomyositis.
- **Inclusion Body Myositis (IBM)** – It is a degenerative muscle disease. It usually affects persons older than 50.
 - ▶ It causes muscle weakness in hands and legs (below knees). It can also affect throat muscles. Around 30% of people with IBM develop dysphagia (difficulty swallowing).

18. Measles and eradication programme

Context: India had set a target to eliminate **measles and rubella (MR) by 2023**, having missed the earlier deadline of 2020, seeing disruptions due to the pandemic.

About the Disease:

- Measles is a **highly infectious condition**.
- Scientists have identified **21 strains** of the measles virus
- There is no specific treatment for measles



Symptoms:

- Runny nose
- Dry hacking cough
- Conjunctivitis, or swollen eyelids and inflamed eyes

- Watery eyes
- Photophobia, or sensitivity to light
- Sneezing
- A reddish-brown rash
- Koplik's spots or very small greyish-white spots with bluish-white centres in the mouth, insides of cheeks, and throat.
- Generalized body aches

Types:

There are *two types of measles*:

- **Measles:** This is the standard form caused by the rubeola virus.
- **Rubella or German measles:** This is caused by the rubella virus.
- Rubella generally presents as mild but presents more of a risk to unborn infants than young children if a woman contracts the virus while she is pregnant.
- It is neither as infectious nor as severe as standard measles.
- The measles, mumps, and rubella (MMR) vaccines contain immunizations for both types.

Spread of Measles and Rubella in India:

- According to the **latest Global Measles and Rubella Update**, India had 56,399 confirmed measles cases and 1,066 confirmed rubella cases in 2018.
- As per WHO, measles is a leading cause of death in children, with one-third (around 56,000 in 2011) of all measles deaths worldwide happening in India.
- Rubella causes birth defects, such as irreversible deafness and blindness in nearly 40 thousand children in India every year.
- At least 220 million children from 30 states and union territories have already been vaccinated under the nationwide campaign that started in 2017.

19. Legionellosis

Context: The bacteria that cause **Legionnaires' disease**, **legionella**, recently produced a cluster of pneumonia cases in Tucumán, Argentina.

Legionnaires' sickness:

- Legionnaires' disease is a **severe form of pneumonia** — lung inflammation usually caused by infection.
- **This deadly form of pneumonia (lung infection)** is caused by the Legionella bacterium (Legionnaires disease).
- **Small water droplets can make people sick**, as can unintentionally ingest **water contaminated with Legionella** into the lungs.
- **Legionellosis**, also known as **Legionnaires' disease and Pontiac fever**, is a condition brought on by **Legionella**.
- People do not typically transmit the Legionnaires **'disease to others'**.

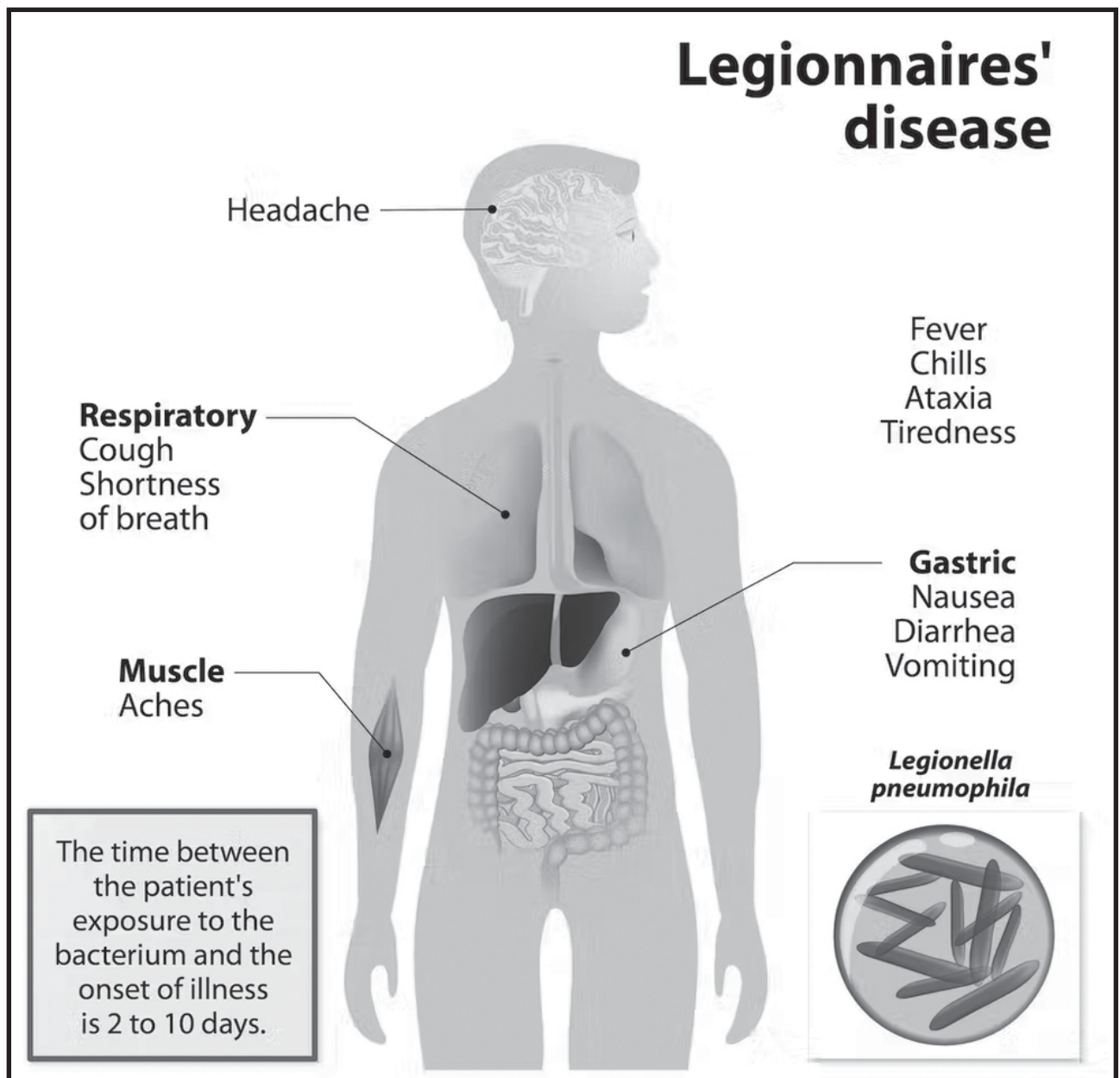
The disease was found following an epidemic in 1976 among attendees of an **American Legion convention in Philadelphia**.

Causes and Typical Infection Sources

- Lakes and streams are examples of freshwater habitats where Legionella bacteria naturally occur.
- When the bacteria multiply and proliferate in building water systems that were made by humans, such as:
 - ▶ faucets and showerheads
 - ▶ Towers for cooling
 - ▶ A hot tub
 - ▶ Water features and decorative fountains
 - ▶ heaters and hot water tanks
 - ▶ massive, intricate piping systems

Symptoms and Signs

- Cough
- breathing difficulty
- Fever
- muscle pain
- Headaches



Treatment

- Legionnaires’ disease cannot be **prevented with a vaccination.**
- **Antibiotics are necessary for the treatment** of legionnaires’ disease, and the majority of cases can be cured

20. Antimicrobial Resistance recognised as a ‘silent pandemic’

Context In a Report by the **Centre for Science and Environment (CSE)** to mark **World Antimicrobial Awareness Week (WAAW)** has mentioned that Antimicrobial resistance (AMR) is a ‘**silent pandemic**’ and is a **global public health threat.**

World Antimicrobial Awareness Week (WAAW):

- **Celebrated On:** November **18-24** globally.
- **Aim:** To create awareness and understanding on the issue of Antimicrobial drugs by Humans and Animals.
- **Theme:** Preventing Antimicrobial Resistance Together, which highlights the importance of strengthening preventive measures to address AMR by working together through a ‘**One Health**’ approach.

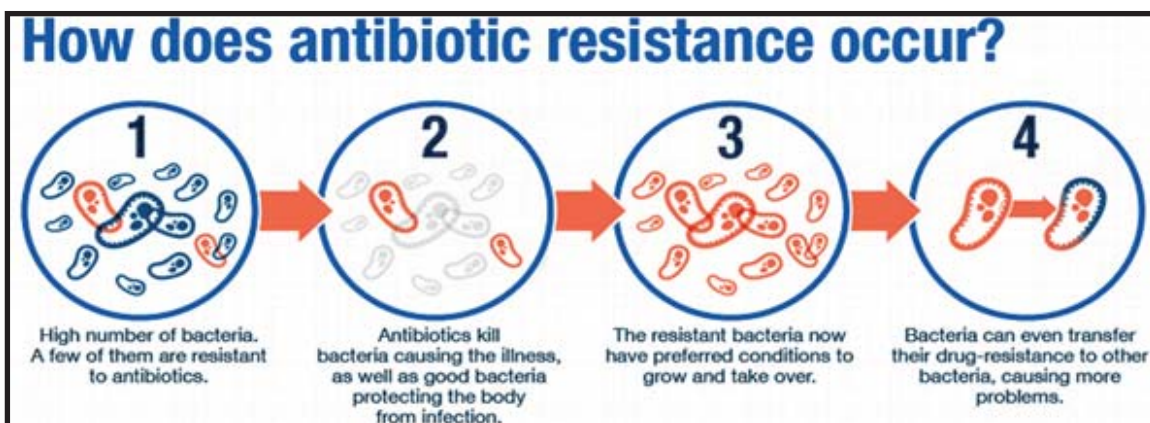
What is Antimicrobial Resistance?

- Antimicrobial Resistance is the resistance acquired by any microorganism (bacteria, viruses, fungi, parasite, etc.) against antimicrobial drugs that are used to treat infections.

World Health Organisation (WHO) has identified AMR as one of the top ten threats to global health.

Factors Responsible:

- Antibiotic consumption in humans
- Access to antibiotics without prescription
- Lack of knowledge about when to use antibiotics



- Steroidal injection to Animals

- Anti-microbial drugs to animals
- Untreated disposal of sewage water bodies

Recent Government Initiatives:

- **National Programme on AMR containment:** Launched in 2012. Under this programme, AMR Surveillance Network has been strengthened by establishing labs in State Medical College.
- **National Action Plan on AMR:** It focuses on One Health approach and was launched in April 2017 with the aim of involving various **stakeholder ministries/departments**.
- **AMR Surveillance and Research Network (AMRSN):** It was launched in 2013, to generate evidence and capture trends and patterns of drug resistant infections in the country.
- **AMR Research & International Collaboration:** Indian Council of Medical Research (ICMR) has taken initiatives to develop new drugs /medicines through international collaborations in order to strengthen medical research in AMR.
- **Antibiotic Stewardship Program:** ICMR has initiated Antibiotic Stewardship Program (AMSP) on a pilot project across India to control misuse and overuse of antibiotics in hospital wards and ICUs.

21. Vasculitis

Context: Hollywood actor Ashton Kutcher had a “weird, super rare form of vasculitis” that affected his **vision, hearing, and equilibrium**.

About the disease:

- A **vasculitis** is a group of disorders that destroy blood vessels by inflammation. It is also called angiitis (“**inflammation within blood vessels**”) or arteritis (“inflammation in arteries”).

Types of Vasculitis:

There are around 20 different disorders that are classified as vasculitis. A few important among them have been given below:

- **Polyarteritis nodosa:** This affects small- to medium-sized blood vessels in many different parts of the body, especially the skin, intestines, kidneys and nerves.
 - **Takayasu's arteritis:** This vasculitis affects medium and large-sized arteries, especially the aortic arch and its branches near the heart. It most **commonly affects teenage girls and young women, and it is most common in Asia**.
 - **Kawasaki disease:** This vasculitis affects the lymph nodes, skin, mucous membranes, and heart, including the coronary arteries (arteries that supply blood to the heart). It is seen most commonly in children.
 - **Behcet's Disease:** Oral and genital ulcers and eye inflammation.
 - **Buerger's Disease:** Mainly affects smokers and leads to decreased flow of blood to the hands and feet.
 - **Churg-Strauss Syndrome:** Associated with asthma, and sinusitis, and tends to involve the lungs, kidneys, and heart as well.
 - **Lecocytoclastic Vasculitis:** Purpura, skin rashes
- It is an **auto-immune disease** in which the body's immune system turns on healthy blood vessels, causing them to swell up, narrow down, stretched, or be weak. The blood vessels might close entirely.

- In vasculitis, the body’s immune system turns on healthy blood vessels, causing them to swell up and narrow down.
- The trigger for vasculitis may be an infection or a drug or blood cancer or immune system diseases, although the **precise reason is often uncertain or unknown**.
- Vasculitis can be only a minor problem affecting the skin, or it can be a serious condition that impacts the heart, kidneys or other vital organs.

Causes:

- The exact cause of vasculitides (plural of vasculitis) is multifactorial (genes, gender, and environment) and is unknown.
- Secondary vasculitis is due to a known cause and appears in the course of other defined diseases. Some causes of secondary vasculitis are listed below:
 - ▶ **Infection** - Viruses (Hepatitis B and C, HIV, Varicella zoster, etc.), bacteria (TB, gonorrhoea, streptococci, staphylococci, etc.), fungi, and others (e.g., syphilis)
 - ▶ **Cancer** - Most malignancies (solid organ tumours, lymphoma, and others).
 - ▶ **Drugs** - Vaccines and desensitization agents, drugs used for nasal allergies (montelukast and others from this group), propylthiouracil, hydralazine, heroin, cocaine, amphetamine, etc. The vasculitides appear after prolonged exposure to the drug, are usually limited to the skin, and disappear on early withdrawal of the offending agent.

22. Cancer Cases in India

Context There is an increasing trend of cancer incidence and deaths due to cancer in India and according to **Indian Council of Medical Research’s (ICMR)** study, one in every nine Indians will develop cancer during their lifetime.

About Cancer

- Cancer is a large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably, go beyond their usual boundaries to invade adjoining parts of the body and/or spread to other organs.
- The latter process is called **metastasizing** and is a major cause of death from cancer.
 - ▶ **A neoplasm and malignant tumour** are other common names for cancer.
- When cancer develops, this orderly process breaks down.
- As cells become more and more abnormal, old or damaged cells survive when they should die and new cells form when they are not needed.
- These extra cells can divide without stopping and forms **tumors**, which can spread through the blood or the lymph system and form **new tumors** far from the **original tumor**.

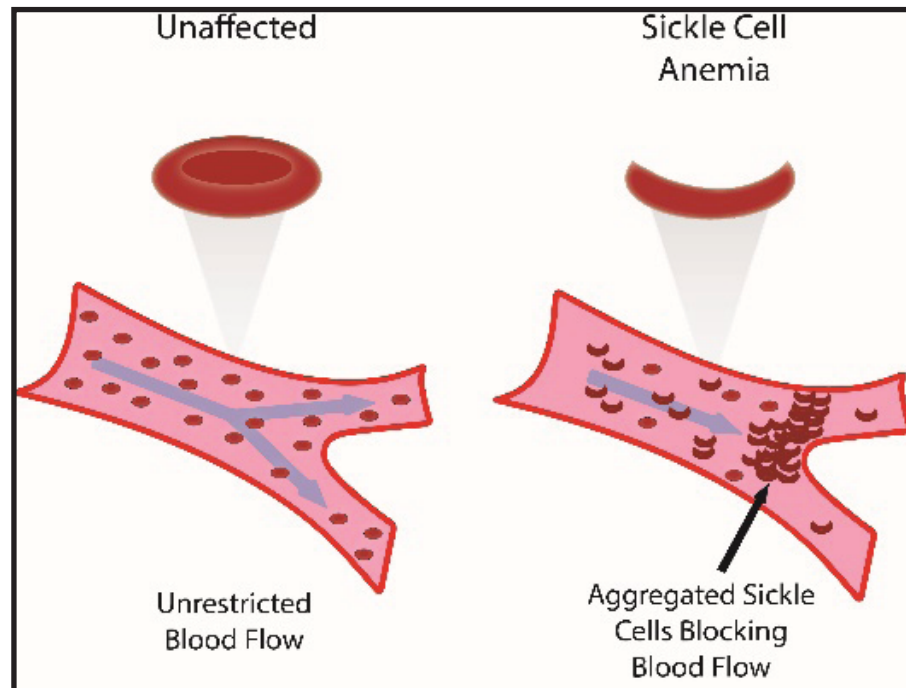
Risk Factors

The modifiable risk factors which are high in Indians can lead to cancer are:

- Alcohol
- Obesity
- Infection
- Tobacco related cancers

23. Sickle Cell Disease (SCD) in India

Context: To commemorate the **World Sickle Cell Disease (SCD) Day** (19th June), the **Ministry of Tribal Affairs (MOTA)** flagged off mobile vans under the **Unmukt project** for strengthening screening and timely management of SCD in tribal districts of Jharkhand and Chhattisgarh.

About the disease:

- It is an **inherited blood disease** which is most common among people of **African, Arabian and Indian origin**.
- It is a **group of disorders** that affects haemoglobin, the molecule in red blood cells that delivers oxygen to cells throughout the body.
- People with this disease have atypical haemoglobin molecules called **haemoglobin S**, which can distort red blood cells into a sickle, or crescent shape.
- This blocks **blood flow and oxygen** from reaching all parts of the body.

Symptoms:

- It can cause severe pain, referred to as **sickle cell crises**.
- Over time, people with sickle cell disorders can experience damage to organs including the liver, kidney, lungs, heart and spleen. Death can also result from complications of the disorder.

Treatment:

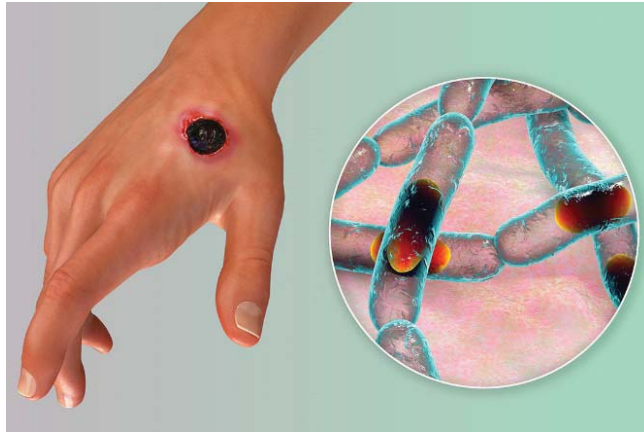
- Medication, blood transfusions and rarely a bone-marrow transplant.

24. Anthrax

Context: The state of Kerala confirmed the presence of anthrax in Thrissur district.

What is Anthrax?

- Anthrax is also known as **malignant pustule** or **wool sorter's disease**.
- It is a rare but serious disease caused by the **rod-shaped bacteria** known as **Bacillus anthracis**.
- It occurs **naturally in soil**.



- According to the WHO, it is primarily a **disease of herbivores**, with both domestic and wild animals being affected by it.
- Anthrax is a **zoonotic disease**, meaning that it is naturally transmissible from animals (usually vertebrates) to humans.
- People can get the disease through contact with **infected animals or animal products that are contaminated with bacteria**.
- According to the WHO, **Anthrax is generally regarded as non-contagious**.
- There have been instances of person-to-person transmission; however, such instances are extremely rare.

How do humans get infected?

- People get infected with anthrax when spores enter the body, through breathing, eating contaminated food or drinking contaminated water, or through cuts or scrapes in the skin.
- The spores then get “activated” and multiply, spreading across the body, producing toxins and causing severe illness.

Symptoms:

- A group of small blisters or bumps that may itch
- Swelling can occur around the sore
- A painless skin sore (ulcer) with a black centre that appears after the small blisters or bumps. Most often the sore will be on the face, neck, arms, or hands.

Types of Anthrax:

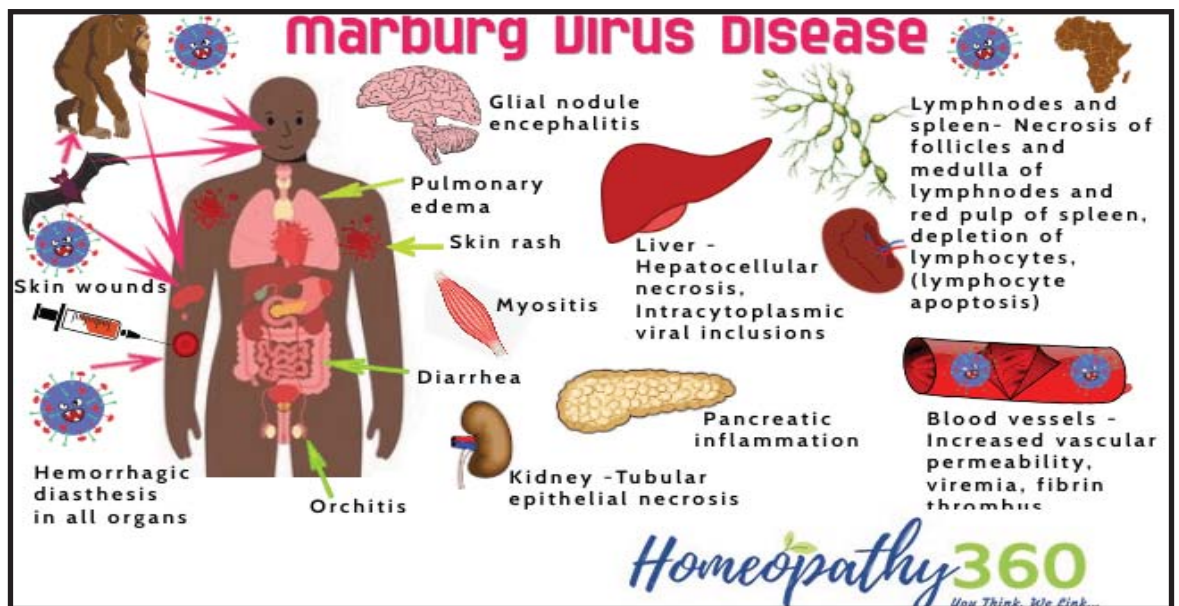
- **Cutaneous:** Most common form of anthrax infection, and is considered to be the least dangerous. Infection usually develops from 1 to 7 days after exposure.
- **Inhalation:** Inhalation anthrax is considered to be the most deadly form of anthrax. Infection usually develops within a week after exposure, but it can take up to 2 months
- **Gastro-intestinal:** Gastrointestinal anthrax has rarely been reported. Infection usually develops from 1 to 7 days after exposure.
- **Injection:** This type of infection has never been reported.

25. Marburg Virus Disease

- Context:**
- The first two cases of the Marburg virus, a highly infectious Ebola-like disease, have been confirmed officially by Ghana after test results were verified by a Senegal laboratory.
 - This outbreak is only the second time that the disease has been detected in West Africa.

About Marburg virus disease:

- According to WHO, Marburg virus disease (MVD), earlier known as Marburg haemorrhagic fever, is a severe, often **fatal hemorrhagic fever**.
- Marburg, like Ebola, is a **filovirus**; and both diseases are clinically similar.
- **Rousettus fruit-bats** are considered the natural hosts for Marburg virus.
- However, **African green monkeys** imported from **Uganda** were the **source of the first human infection**.
- It was **first detected in 1967** after simultaneous outbreaks in **Marburg and Frankfurt** in Germany; and in Belgrade, Serbia.
- The disease has an **average fatality rate of around 50%**.



Symptoms:

- Common symptoms of Marburg virus disease include- high fever, severe malaise, severe headache, Muscle aches and pains.
- Patients may also see severe watery diarrhoea, nausea & vomiting, abdominal pain & cramping on the third day following the contracting.

Treatment:

- **No treatment or vaccine** has been developed for Marburg, yet.
- Patients are treated through **rehydration with oral or intravenous fluids**.

26. Lumpy Skin Disease

Context: A disease, Lumpy Skin Disease (LSD) is spreading among cattle across several villages in the Kammana in Kerala's Wayanad district.

What is lumpy skin disease?

- Lumpy skin disease (LSD) is a viral illness that causes prolonged morbidity in cattle and buffaloes.

- It is a **poxviral disease**.
- It appears as nodules of two to five centimetre diameter all over the body, particularly around the head, neck, limbs, udder and genitals.
- The lumps gradually open up like large and deep wounds.



- In some cases, under 10 per cent according to the Food and Agriculture Organization (FAO) — the infected animal succumbs to the disease.
- LSD virus is a member of the genus **Capripoxvirus** and the **family Poxviridae**. It is closely related antigenically to **sheeppox virus** and **goatpox virus**.
- **Transmission:** The LSD virus easily spreads by blood-sucking insects like mosquitoes, flies and ticks and through saliva and contaminated water and food.
 - ▶ The virus is not zoonotic and doesn't infect humans through consumption of milk or meat.
- **Treatment:** Veterinarians say no treatment is available for the disease.
- The World Organisation for Animal Health (OIE) declares it as a **notifiable disease**.
 - ▶ This means a country must inform OIE about any outbreak of the disease so that it can be contained.

Spread in India:

- In India, which has the world's highest 303 million heads of cattle, the disease has spread to 15 states within just 16 months.
- In fact, in August 2019, when the first outbreak of LSD was reported from Odisha, five districts were grappling with the exotic cattle pox
- However, no consolidated figure is available with the Department of Animal Husbandry and Dairying (DAHD) regarding the actual spread of LSD in the country or economic losses incurred by farmers.
- Unofficial estimates show at least 5,000 heads of cattle might have contracted LSD in Kerala alone since December 2019.

27. Detailed genome of the malaria mosquito vector

Context	Scientists unveiled the detailed genome of the malaria mosquito vector , revealing thousands of new genes vital for the development of genetic control strategies of disease transmission.
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About Malaria

- Malaria is a parasitic infection transmitted by **Anopheline mosquitoes**.
- **Host:** Humans and anopheline mosquitoes are both considered to be the parasite's hosts.

- **Vectors:** Vectors are living organisms that can transmit infectious pathogens between humans, or from animals to humans.
- **Vector-borne diseases:** Vector-borne diseases are human illnesses caused by parasites, viruses and bacteria that are transmitted by vectors.

Genome

- A genome is all genetic material (coding as well as noncoding regions) of an organism. It consists of **DNA (or RNA in RNA viruses)**.
- It also included **mitochondrial DNA and chloroplast DNA (in photosynthetic organisms)**.
- The study of the genome is called **Genomics**.

28. Depletion of particular brain tissue linked to chronic depression, suicide: Study

Context In a recent research, a common characteristic has been found in the brain structure of people who died by suicide. There was a sharp fall in the density of '**Astrocytes**', a particular nerve cell throughout the brain.

What is Astrocytes?

- It is a type of supportive **nerve cells**, look like the end of a frayed rope.
- They are **highly heterogeneous neuroglial cells** with distinct functional and morphological characteristics in different parts of the brain.
- They are responsible for maintaining a number of complex processes needed for a healthy **central nervous system (CNS)**.

29. Environmental DNA (e-DNA)

Context Researchers from two teams have independently shown that **environmental DNA (e-DNA)** can potentially identify and monitor terrestrial animals.

About e-DNA

- Animals shed DNA through their **breath, saliva, fur or faeces** into the environment. These samples are called **e-DNA or environmental DNA**.
- Tracking animals through e-DNA isn't a new idea. Biologists have frequently observed aquatic organisms by sequencing e-DNA from water samples.

30. Dementia cases to be increased by 197% by 2050: Study

Context As per the **Global Burden of Disease Study 2019** published in **Lancet**, in India, the number of people with dementia will increase by 197% between 2019 and 2050.

What is Dementia?

- It is currently the **seventh leading cause of death** worldwide and one of the major causes of **disability and dependency** among **older people** worldwide.
- It is a term used to describe a **group of symptoms affecting memory, thinking and social abilities** severely enough to interfere with your daily life.
- It is caused by **damage to or loss of nerve cells** and their connections in the brain.
- It isn't a specific disease, but **several diseases can cause dementia**.

Alzheimer's disease

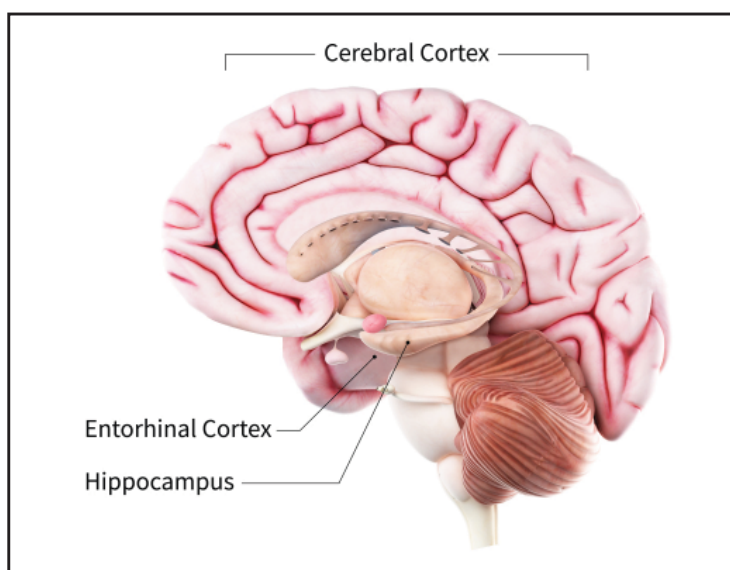
Alzheimer's disease is the most common cause of a progressive dementia in older adults, but there are a number of other causes of dementia.

31. Decline in 'amyloid-beta' causes Alzheimer's disease: Study

Context A New research supports the hypothesis that Alzheimer's disease is caused by a decline in levels of a protein called amyloid-beta.

About Alzheimer disease:

- In Alzheimer's disease the neurons stop functioning, lose connections with other neurons, and dies.



- Alzheimer's disrupts processes vital to neurons and their networks, including communication, metabolism, and repair.

- **Effects:**
- Alzheimer's disease typically destroys neurons and their connections in parts of the brain involved in memory, including the **entorhinal cortex and hippocampus**.
- Eventually, many other areas of the brain are damaged. Over time, a person with Alzheimer's gradually loses his or her ability to live and function independently.
- Ultimately, the disease is fatal.

32. DBT-NII India's First Indigenous Tumour Antigen SPAG9

Context In a recent development, the **SPAG9 antigen** which was discovered by **Dr Anil Suri in 1998**, has received the trademark **ASPAGNIITM**.

ASPAGNIITM and Immunotherapy

- Immunotherapy is a new approach that exploits the **body's inner capability** to put up a fight against cancer.
- With this approach, either the immune system is given a boost, or the **T cells** are "trained" to identify recalcitrant cancer cells and kill them.
- Currently, **ASPAGNIITM** is being used in **dendritic cell (DC)** based immunotherapy in cervical, ovarian cancer and will also be used in breast cancer.
- In this personalized intervention, those patients expressing SPAG9 protein can be treated with **DC-based vaccine approach**.
- In **DC-based vaccine**, patient's cells called monocytes from their blood are collected and modified into what are called dendritic cells.
- These dendritic cells are primed with **ASPAGNIITM** and are injected back to the patient to help the '**fighter**' cells, or **T-cells**, in the body to kill the cancer cells.
- DC-based immunotherapy is safe, affordable and can promote antitumor immune responses and prolonged survival of cancer patients.

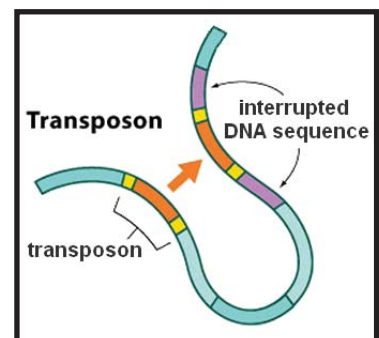
- T-cells are a type of white blood cell that work with **macrophages**.
- Unlike macrophages that can attack any invading cell or virus, each T-cell can fight only one type of virus.

33. Jumping' genes role in blood cancers

Context US scientists have found that jumping genes can protect against certain blood cancers and they can also help in developing **new therapeutic targets**.

What are Jumping genes?

- Jumping genes are also known as **transposons**.
- They are DNA sequences that can move or jump from one location to another location in the genome after activation.
- Jumping genes act as **mutating agents** and are behind several human diseases. They change the gene sequence and genome size.



34. Kyasanur forest disease (KFD)

Context A new point-of-care test for KFD has been developed by **Indian Council of Medical Research (ICMR)** which is a battery-operated **Polymerase Chain Reaction (PCR)** analyzer that aids in sample processing at the point of care.

About KFDV

- It is a **tick-borne viral hemorrhagic fever**, also referred as **monkey fever**.
- It is caused by **Kyasanur Forest disease virus (KFDV)**, a member of the virus family **Flaviviridae**.
- KFDV was first identified in 1957 when it was isolated from a sick monkey from the **Kyasanur Forest in Karnataka (formerly Mysore) State**.
- **Hard ticks (Hemaphysalis spinigera)** are the reservoir of KFD virus and once infected, remain so for life.
- Rodents, shrews, and monkeys are common hosts for KFDV after being bitten by an infected tick.
- KFDV can cause epizootics with high fatality in primates.

35. Rise of Zika virus cases in India

Context India faced a rise in cases of Zika.

What is Zika?

- Zika is a mosquito-borne flavivirus, transmitted mostly by the bite of infected *Aedes* species mosquitoes (*A. aegypti* and *A. albopictus*).
- These are the same mosquitoes that spread dengue and chikungunya viruses.
- Zika can be passed from a pregnant woman to her foetus.
- Additionally, it can be transmitted sexually and blood transfusion (very likely but not confirmed).

36. Haemorrhagic septicaemia

Context Elephant's death were reported in Odisha's Kalahandi district due to **Haemorrhagic Septicaemia**.

About Haemorrhagic Septicaemia

- Haemorrhagic Septicaemia is a **contagious bacterial disease** which infects animals that come in contact with contaminated water or soil.
- It is caused by certain serotypes of *Pasteurella multocida*, a Gram negative *Coccobacillus* residing mostly as a commensal in the nasopharynx of animals.
- The disease generally spreads in the period right before and after the monsoons. It can affect cattle, buffalo and other animals.
- It occurs in parts of Asia and Africa and is often fatal.
- Vaccination against this disease is widely practiced

37. WHO releases new roadmap to defeat meningitis

Context The World Health Organization (WHO) and its partners launched the **first-ever global strategy to defeat meningitis**, a debilitating disease that kills hundreds of thousands of people each year.

What is Meningitis?

- Meningitis is an inflammation of the membranes (meninges) that protect the spinal cord and brain, causing life-threatening problems.
- An infection of the fluid surrounding the brain and spinal cord usually causes the swelling.
- However, injuries, cancer, certain drugs, and other types of infections also can cause meningitis.

Types of meningitis

- **Viral meningitis** is the most common type of meningitis.
- **Bacterial meningitis** caused by infection from certain bacteria and it is most deadly.
- **Fungal meningitis** is a rare type of meningitis.
- **Parasitic meningitis** is less common than Viral and Bacterial.
- **Non-infectious meningitis** can be caused by cancers, certain drugs, injury, head surgery, etc.

38. Rare Disease Day

Context ◦ **Rare Disease Day (RDD)** is observed **every year on the last day of February**. This year in 2022 it falls on February 28, 2022.

About

- The day is observed to raise awareness for rare diseases and improve access to treatment and medical representation for individuals with rare diseases and their families.
- The Rare Disease Day (RDD) theme for 2022 “Share Your Colors.”

What are ‘rare diseases’?

- **Rare diseases** are often serious, chronic and life-threatening conditions.
- WHO defines a rare disease as often debilitating lifelong disease or disorder with a prevalence of 1 or less, per 1000 population.

National Policy on Rare Diseases

- The **National Policy on Rare Diseases** aims to provide treatment up to Rs 15 lakhs.
- It proposes to set up a **registry under ICMR (Indian Council of Medical Research)**.
- The policy categorises rare diseases into **three categories namely disorders requiring long term or long-life therapy, disorders amenable to one-time treatment and incurable rare disease disorders that require lifelong supportive care**.

39. World Leprosy Day

Context Every year the **last Sunday of January** is dedicated to the observation of **World Leprosy Day**. This year the event is being marked on **30 January, which is the last Sunday of January, 2022**.

Important facts about Leprosy

- **Leprosy (Hansen's disease)** is an infectious disease caused by **Mycobacterium leprae** that involves the skin and peripheral nerves.
- The disease mainly affects the **skin, the peripheral nerves, mucosa of the upper respiratory tract and eyes**.
- The disease is not hereditary, leprosy does not transmit from parents to children.
- **Transmission:** While the mode of transmission of leprosy is not known, the most widely held belief is that the disease was transmitted by contact between those with leprosy and healthy persons.
 - ▶ More recently, the possibility of transmission by the respiratory route is gaining ground.
 - ▶ There are also other possibilities such as transmission through insects which cannot be completely ruled out.
- **Most affected:** Although leprosy affects both sexes, in most parts of the world males are affected more frequently than females, often in the ratio of 2:1, according to **WHO's Global Leprosy Report**.
- **Treatment:** Leprosy is curable with **MDT (multi drug therapy)** and treatment in the early stages can prevent disability.

40. National Deworming Day

Context National Deworming Day is observed on **10 February** annually to spread awareness about the importance of deworming in all preschool and children of school age between 1 to 19 years.

About the National Deworming Day

- The National Deworming Day is a **single fixed-day approach** to treating **intestinal worm infections** in all children aged 1- 19 years.
- It aims to mobilize health personnel, state governments and other stakeholders to prioritize investment in control of **Soil Transmitted Helminth (STH) infections**, one of the most common infections.
- All the children are provided deworming tablets in schools and anganwadis.
 - ▶ Besides the deworming tablet, various health promotion activities related to **Water, Sanitation and Hygiene (WASH)** are organised in schools and anganwadis.
- The NDD program is a cost-effective program at scale that continues to reach crores of children and adolescents with deworming benefits through a safe medicine **Albendazole**.

Background

- India carries the highest burden of worm infestation and 64% of the Indian population less than 14 years of age are at risk of **Soil Transmitted Helminths (STH) or worms' infestation (WHO)**.
- **Soil Transmitted Helminths (STH)** interfere with nutrients uptake in children; can lead to anaemia, malnourishment and impaired mental and physical development.
- The situation of undernutrition and anaemia which is linked to STH ranges from 40% to 70% in different population groups across the country (WHO).
 - ▶ They also pose a serious threat to children's education and productivity later in life.

41. International Epilepsy Day

Context International Epilepsy Day is observed every year on the second Monday of February across the world.

What is Epilepsy?

- Epilepsy is derived from the Greek word which means ‘to be seized, to be overwhelmed by surprise’.
- Suffering from epilepsy means **having a tendency to have recurring seizures**.
- It is said that if the brain is exposed to a strong enough stimulus then anyone can have a seizure.

Cause of Epilepsy

- There are various types of epilepsy. Some types of it **start at a young age and some in later life**.
- Some types **last for a short period of time and some for the whole life**.
- It could be **due to brain damage occurring by a difficult birth, a severe blow to the head, or due to an infection of the brain like meningitis**.
- Occasionally it is **caused by a brain tumour**. It is said that in around **six of ten people, doctors don’t know the reason for their epilepsy**.

42. Reversal of type-2 diabetes in young people without medication

Context A sedentary lifestyle and wrong eating behavior have made people more vulnerable to diseases like type-2 diabetes. But slight modification in lifestyle can reverse it.

Diabetes:

- Diabetes is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin, it produces.
- **Type 2 diabetes** is age-related; it often develops at the age of 45 and beyond.
- **Type 1 diabetes** is largely genetic in nature, while Type 2 depends on the lifestyle of the individual.

Its Types:

- **Type I diabetes:** Also known as juvenile diabetes, this type occurs when the body fails to produce insulin. People with type I diabetes are **insulin-dependent**, which means they must take artificial insulin daily to stay alive.
- **Type 2 diabetes:** It affects the way the body uses While the body still makes insulin, unlike in type I, the cells in the body do not respond to it as effectively as they once did.
- This is the most common type of diabetes and it has strong links with obesity.

Government initiatives:

- **India’s National non-communicable disease (NCD) Target** is to prevent the rise in obesity and diabetes prevalence.

About Insulin:

- Insulin is a peptide hormone produced by beta cells of the pancreatic islets;
 - It is considered to be the main *anabolic hormone* of the body.
 - It regulates the metabolism of carbohydrates, fats, and protein by promoting the absorption of glucose from the blood into the liver, fat, and skeletal muscle cells.
- **National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)** in 2010, to provide support for diagnosis and cost-effective treatment at various levels of health care.

World Diabetes Day:

- It is observed on **14th November every year**.
- The 2022 campaign will focus on access to diabetes education.
- **Access to diabetes education** is the theme of this year's World Diabetes Day.

43. Banana Fungus

- Context:**
- Recently, a novel fungus strain *Fusarium wilt TR4* has started infecting the Banana plantations in India.
 - It has been described as the equivalent of Covid-19 in Bananas. Similar to Covid-19, there is no treatment yet for the new fungal disease.

The Epicentre:

- In the midst of the **coronavirus disease outbreak, *Fusarium wilt TR4***, has devastated plantations across the globe.
- **Ecuador**, the largest exporter of Banana was the epicentre.
- Banana is the world's most globally exported fruit and the disease is breaching borders through international trade.
- The spreading disease has impacted the \$26 billion global banana trade.
- **The strain, Tropical Race 4 (TR4):**
 - ▶ It was first identified in Taiwan, and has moved from **Asia to the Middle East and Africa**, reaching as far as **Latin America**.
 - ▶ It cripples plantations by first attacking the leaves, which turn yellow from their trailing edges before wilting away.



According to the **Food and Agriculture Organization of the United Nations**, TR4 is one of the **“the most destructive of all plant diseases”**.

- **Impact in India:**
 - ▶ The **fungal strain** is now **spreading and threatening** output in India, the world's largest producer of bananas.
 - ▶ **Katihar and Purnea in Bihar** and **Maharajganj in Uttar Pradesh** are the hotspots in India.

- ▶ TR4 has infected the most commonly sold variety, **Grand Nain (musa acuminata)**.
 - **Grand Nain:** It accounts for 55% of the banana area in the country and accounts for 62% of commerce, including exports.
- ▶ Inability to contain TR4 could impact the farm incomes and push up banana prices.

Other Important Disease

Hepatitis A

- Hepatitis A is an inflammation of the liver that can cause mild to severe illness.
- The hepatitis A virus (HAV) is transmitted through ingestion of contaminated food and water or through direct contact with an infectious person.
- The risk of hepatitis A infection is associated with a lack of safe water and poor sanitation and hygiene (such as contaminated and dirty hands).
- A safe and effective vaccine is available to prevent hepatitis A.

Hepatitis B

- Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic disease.
- The virus is most commonly transmitted from mother to child during birth and delivery, as well as through contact with blood or other body fluids during sex with an infected partner, unsafe injections or exposures to sharp instruments.
- Hepatitis B can be prevented by vaccines that are safe, available and effective.

Rubella

- Rubella is a contagious viral infection best known by its distinctive red rash. It's also called German measles or three-day measles.
- This infection may cause mild or no symptoms in most people. However, it can cause serious problems for unborn babies whose mothers become infected during pregnancy.
- The measles-mumps-rubella (MMR) vaccine is safe and highly effective in preventing rubella.
- Rubella isn't the same as measles, but the two illnesses share some signs and symptoms, such as the red rash. Rubella is caused by a different virus than measles, and rubella isn't as infectious or as severe as measles.

Measles

- Measles is a very contagious respiratory infection.
- It causes a total-body skin rash and flu-like symptoms.
- Measles is caused by a single-stranded, enveloped RNA virus with 1 serotype. It is classified as a member of the genus Morbillivirus in the Paramyxoviridae family. Humans are the only natural hosts of measles virus.

Rare diseases

- These are often serious, chronic, and life-threatening conditions.
- WHO defines a rare disease as an often debilitating lifelong disease or disorder with a prevalence of 1 or less, per 1000 population.
- However, different countries have their own definitions.
- A disease or disorder is defined as rare in India when it affects less than 1 in 2500 individuals.
- There may be as many as 7,000 rare diseases, individual diseases may be rare, and the total number of people with a rare disease is large.
- **Examples:** Lysosomal Storage Disorders (LSD), Gaucher disease, Pompe disease, cystic fibrosis, muscular dystrophy, spina bifida, haemophilia, MPS 1 and 2, and Fabry disease

PREVIOUS YEAR QUESTIONS

1. Which one of the following statements is not correct?

- Hepatitis B virus is transmitted much like HIV.
- Hepatitis B, unlike Hepatitis C, does not have a vaccine.
- Globally, the number of people infected with Hepatitis B and C viruses are several times more than those infected with HIV.
- Some of those infected with Hepatitis B and C viruses do not show the symptoms for many years.

2. Consider the following statements:

- In tropical regions, Zika virus disease is transmitted by the same mosquito that transmits dengue.
- Sexual transmission of Zika virus disease is possible.

Which of the statements given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

3. H1N1 virus is sometimes mentioned in the news with reference to which one of the following diseases?

- AIDS
- Bird flu
- Dengue
- Swine flu

4. Consider the following diseases

- Diphtheria
- Chickenpox
- Smallpox

Which of the above diseases has/have been eradicated in India?

- 1 and 2 only
- 3 only
- 1, 2 and 3
- None of the above

5. Which one of the following is the process involved in photosynthesis?

- Potential energy is released to form free energy
- Free energy is converted into potential energy and stored
- Food is oxidized to release carbon dioxide and water
- Oxygen is taken, and carbon dioxide and water vapour are given out

6. Consider the following pairs:

Vitamin Deficiency disease

- Vitamin C Scurvy
- Vitamin D Rickets
- Vitamin E Night blindness

Which of the pairs given above is/are correctly matched?

- 1 and 2 only
- 3 only
- 1, 2 and 3
- None

7. A company marketing food products advertises that its items do not contain trans-fats. What does this campaign signify to the customers?

- The food products are not made out of hydrogenated oils.
- The food products are not made out of animal fats/oils.
- The oils used are not likely to damage the cardiovascular health of the consumers.

Which of the statements given above is/are correct?

- Only 1
- 2 and 3 only
- 1 and 3 only
- 1, 2 and 3

8. Which of the following processes in the bodies of living organisms is a digestive process?

- Breakdown of proteins into amino acid
- Breakdown of glucose into CO₂ and H₂O
- Conversion of glucose into glycogen
- Conversion of amino acids into proteins

9. Widespread resistance of malarial parasite to drugs like chloroquine has prompted attempts to develop a malarial vaccine to combat malaria. Why is it difficult to develop an effective malaria vaccine?

- Malaria is caused by several species of Plasmodium
- Man does not develop immunity to malaria during natural infection
- Vaccines can be developed only against bacteria
- Man is only an intermediate host and not the definitive host

10. Consider the following statements:

- Hepatitis B is several times more infectious than HIV/AIDS
- Hepatitis B can cause liver cancer

Which of the statements given above is/are correct?

- (a) 1 only (c) Both 1 and 2
(b) 2 only (d) Neither 1 nor 2

11. Consider the following statements:

- Every individual in the population is equally susceptible host for Swine Flu.
- Antibiotics have no role in the primary treatment of Swine Flu.
- To prevent the future spread of Swine Flu in the epidemic area, the swine (pigs) must all be culled.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (c) 2 and 3 only
(b) 2 only (d) 1, 2 and 3

12. With regard to the transmission of the Human Immunodeficiency Virus, which one of the following statements is not correct?

- The chances of transmission from female to male are twice as likely as from male to female
- The chances of transmission are more if a person suffers from other sexually transmitted infections
- An infected mother can transmit the infection to her baby during pregnancy, at childbirth and by breast feeding
- The risk of contracting infection from transfusion of infected blood is much higher than an exposure to contaminated needle

13. Which of the following is/are the example/examples of chemical change?

- Crystallization of sodium chloride
- Melting of ice
- Souring of milk

Select the correct answer using the code given below:

- (a) 1 and 2 only (c) 1, 2 and 3
(b) 3 only (d) None

14. Consider the following phenomena:

- Light is affected by gravity.
- The Universe is constantly expanding.
- Matter warps its surrounding space-time.

Which of the above is/are the predictions of Albert Einstein's General Theory of Relativity, often discussed in media?

- (a) 1 and 2 only (c) 1 and 3 only
(b) 3 only (d) 1, 2 and 3

15. Consider the following statements regarding the friction:

- It depends on the nature of surfaces in contact.
- It is caused by the irregularities on the two surfaces in contact.

Which of the above statements is/are correct?

- (a) 1 only (c) Both 1 and 2
(b) 2 only (d) Neither 1 nor 2

16. Rainbow is produced when sunlight falls on drops of rain. Which of the following physical phenomena are responsible for this?

- Dispersion
- Refraction
- Internal reflection

Select the correct answer using the codes given below?

- (a) 1 and 2 only (c) 1 and 3 only
(b) 2 and 3 only (d) 1, 2 and 3

17. Ball bearings are used in bicycles, cars, etc., because

- The actual area of contact between the wheel and axle is increased
- The effective area of contact between the wheel and axle is increased
- The effective area of contact between the wheel and axle is reduced
- None of the statements is correct

18. With reference to recent developments regarding 'Recombinant Vector Vaccines', consider the following statements:

- Genetic engineering is applied in the development of these vaccines.
- Bacteria and viruses are used as vectors.

Which of the statements given above is/are correct?

- (a) 1 only (c) Both 1 and 2
(b) 2 only (d) Neither 1 nor 2

19. In the context of hereditary diseases, consider the following statements:

- Passing on mitochondrial diseases from parent to child can be prevented by mitochondrial replacement therapy either before or after in vitro fertilization of egg.
- A child inherits mitochondrial diseases entirely from mother and not from father.

Which of the statements given above is/are correct?

- (a) 1 only (c) Both 1 and 2
 (b) 2 only (d) Neither 1 nor 2

20. Consider the following:

1. Bacteria
2. Fungi
3. Virus

Which of the above can be cultured in artificial/synthetic medium?

- (a) 1 and 2 only (c) 1 and 3 only
 (b) 2 and 3 only (d) 1, 2 and 3

ANSWER KEY

1. (b)	2. (c)	3. (d)	4. (b)
5. (b)	6. (a)	7. (c)	8. (a)
9. (a)	10. (c)	11. (b)	12. (a)
13. (b)	14. (c)	15. (c)	16. (d)
17. (d)	18. (c)	19. (c)	20. (a)

For More Previous Year Questions



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PRACTICE MCQs

1. Consider the following statements:

1. Like coronaviruses, HIV virus also carries single-stranded RNA as its genetic material.
2. All strains are variants, but not all variants are strains.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

2. Consider the following statements regarding 'Norovirus', seen in news recently:

1. It is a highly contagious group of viruses that leads to gastrointestinal illness.
2. Anyone can get infected and sick with norovirus.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

3. With reference to Havana syndrome, consider the following statements:

1. It refers to a set of mental health symptoms that are said to be experienced by US marine officers posted in Florida and in Cuba.
2. High-powered microwaves are suspected to be the cause of this syndrome.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

4. With reference to African Swine Fever (ASF), consider the following statements:

1. It is a severe viral disease that affects both wild and domestic pigs.
2. It has a case fatality rate (CFR) of about 100 percent.
3. Unlike the H1N1 virus that causes swine flu, the ASF virus doesn't infect humans.

Which of the above statements is/are correct?

- (a) 1 and 3 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

5. Regarding the West Nile Virus (WNV), consider the following statements:

1. It is related to Zika, dengue and yellow fever viruses and can lead to a fatal neurological disease in humans.
2. Mosquitoes of the genus Culex are the natural hosts of West Nile virus.
3. Presently, no vaccine is available for prevention against the virus in humans.

Which of the above statement(s) is/are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

6. Consider the following statements:

1. Both Alzheimer's and Parkinson's diseases are characterized by clumping of modified proteins in the central nervous system.
2. Alzheimer's disease has clumps of beta-amyloid and tau whereas, Parkinson's disease has Lewy bodies composed of alpha-synuclein.
3. The movement problems in Parkinson's disease are due to abnormally high production of dopamine by the neurons.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

7. Consider the following statements regarding 'vaccine efficacy':

1. The efficacy percentage depends on the way clinical trial is performed.
2. Vaccine efficacy is generally more than vaccine effectiveness.

Which of the statement(s) given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

8. Emvolio recently seen in news is related to which of the following?

- (a) Vaccine for Ebola
- (b) Spacecraft to collect debris
- (c) Biodegradable vaccine vials
- (d) Battery powered refrigerator

9. Which of the following statement(s) is/are correct regarding Zika Virus?

1. All the infections caused by Zika are symptomatic.
2. There is no chance of mother-to-child transmission.
3. There is no treatment available for Zika virus infection or its associated diseases.

Select the correct option using the codes given below:

- (a) 1 and 2 only
- (b) 2 only
- (c) 3 only
- (d) 1 and 3 only

10. With reference to Neglected Tropical Diseases (NTDs), consider the following statements:

1. NTDs are a diverse group of tropical infections which are common in low-income populations in developing regions of Africa, Asia, and the Americas.
2. They are caused by a variety of pathogens such as viruses, bacteria, protozoa and parasitic worms.
3. Dengue is an example of NTD.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

11. With reference to Kala-azar disease, consider the following statements:

1. It is a bacterial disease which is transmitted through the bite of sand flies.
2. It is one of the Neglected Tropical Diseases (NTD).
3. It has a fatality rate of over 95% if left untreated.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

12. Consider the following statements about Notifiable Diseases in India:

1. The onus of notifying any disease and the implementation lies with the state government.
2. Tuberculosis and diphtheria are notifiable disease in India.
3. Any failure to report a notifiable disease is a criminal offence and the state government can take necessary actions against defaulters.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

13. Which of the following statements regarding 'Kabasura Kudineer' is correct?

- (a) It is a Siddha medicine found useful in the treatment of mild to moderate covid-19 infection.
- (b) It is a native species of Kerala to treat Kyasanur Forest disease.
- (c) It is a spice whose import has surged due to COVID-19.
- (d) It is a world heritage site near Trivandrum.

14. The "Inequality Virus Report" was released by:

- (a) United Nations Development Programme
- (b) Oxford Poverty & Human Development Initiative (OPHI)

- (c) Oxfam International
- (d) World Bank

15. New Bird flu (avian influenza) cases have been confirmed in Gujarat recently. Consider the following statements regarding the same:

1. The most common strain of the virus that causes severe respiratory disease in birds is H1N1.
2. The virus can jump species and infect humans from the infected bird.
3. It has a mortality rate of over 50% in humans.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 only
- (d) 2 and 3 only

16. Consider the following statements regarding the antibody test for COVID-19:

1. It is a serological test that looks for the presence of virus through nasal and throat swab.
2. It is used to confirm the patient is currently infected with corona virus.
3. It can help in developing convalescent plasma therapy for COVID-19.

Which of the above statements is/are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

17. Recent studies show that unexposed people may have COVID-19-specific memory T cells. Consider the following statements in this regard:

1. T Cells are a type of white blood cells responsible for adaptive immune response in an organism.
2. T Cells produce antibodies in response to the antigens.
3. T Cells mature in the bone marrow.

Which of the above statement is/are correct?

- (a) 1 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) None of the above

18. With reference to the Equine Herpes Virus, consider the following statements:

1. Equine Herpes Virus is a common RNA virus line Coronavirus that occurs in horse populations worldwide.

2. It is contagious and spread by direct horse-to-horse contact via the respiratory tract through nasal secretions.
3. It is not transmissible to humans.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

19. With reference to 'Superinfections', consider the following statements:

1. It is an event in which an infectious disease is spread much more than usual.
2. It is caused by an individual who is more likely to infect others, compared with a typical infected person.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

20. With reference to shigella infection, seen in news recently, consider the following statements:

1. It is a contagious intestinal infection caused by a genus of bacteria.
2. Person-to-person transmission of this infection is not possible.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

21. Consider the following statements regarding the Global Alliance for Vaccines and Immunization (GAVI):

1. It is a public private health partnership which aims at increasing access to immunization in poor countries.
2. It includes the WHO, World Bank and UNICEF.
3. It has observer status at World Health Assembly.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

22. Consider the following statements about combatants to Tuberculosis:

1. Rapid molecular, sputum, and culture-based methods are only 50% accurate in the early detection of Tuberculosis in patients.
2. National Strategic Plan set a target of TB elimination by 2025
3. The Health Ministry has signed a Memorandum of Understanding (MoU) with Wadhvani Institute for Artificial Intelligence (AI) to explore the application of Artificial Intelligence technology in its fight against tuberculosis (TB).
4. MDR-TB is not resistant to anti-TB drugs.

Which of the above statements is/are correct?

- (a) 1, 3 and 4 only
- (b) 1 only

- (c) 1, 2 and 3 only
- (d) 2, 3 and 4 only

ANSWER KEY

1. (c)	2. (c)	3. (b)	4. (d)
5. (c)	6. (b)	7. (c)	8. (d)
9. (c)	10. (d)	11. (c)	12. (d)
13. (a)	14. (c)	15. (d)	16. (c)
17. (a)	18. (b)	19. (d)	20. (a)
21. (a)	22. (c)		



SUCCESS IS A PRACTICE WE DO!

