MANIDHANAEYAM FREE IAS ACADEMY – TNPSC GROUP II & IIA

TEST 3 – DECEMBER 2022 – ANSWER KEY

Manidhanaeyam Free IAS Academy

(Run by Manidha Naeyam Charirable Trust)
28, 1st Main Road, CIT Nagar, Chennai - 35 (HO).
Mail Address: manidhanaeyam@gmail.com
Website: mntfreeias.com

TEST - 3 – 25 Dec 2022 (Answer Key)

6 MARKS = 6 to 7 POINTS
12 MARKS = 12 to 14 POINTS
15 MARKS = 15 to 17 POINTS

- ✓ எளிமையான வாக்கிய அமைப்பு தேவை
- ✓ நீளமான வாக்கிய அமைப்பை தவிர்க்க வேண்டும்.
- ✓ விடைத்தாளில் கொடுக்கப்பட்ட இடைவெளிக்குள் விடையை எழுதி முடிக்க வேண்டும்.
- ✓ தனித்துவமான விடையை எழுதுவதற்கு பயிற்சி செய்யவும்.
- ✓ கால மேலாண்மையை கருத்தில் கொள்ளவும் 3 மணி நேரத்திற்குள் விடையை எழுதி முடிக்க வேண்டும்.
- ✓ SCERT பாட புத்தகங்களுக்கு அதிக முக்கியத்துவம் கொடுக்கவும், தேவை ஏற்படின் பிற பாட புத்தகங்களையும் பார்க்கவும்.
- ✓ முதன்மை தேர்வு தொடர்பான TNPSC அறிவுறுத்தல்களை கருத்தில் கொள்ளவும்.

தாள்-II

PAPER-II

பொது அறிவு

GENERAL STUDIES

அலகு - I / UNIT - I

பிரிவு - அ / SECTION – A

(15 x 6 = 90)

1. மின்காந்தத்தின் பண்புகள் மற்றும் பயன்களை பட்டியலிடுக.

State the characteristics and utility of electromagnets.

Electromagnetism has revolutionized engineering applications tremendously. Apart from this it has made great changes in medicine, industry and astronomy.

a. Loudspeaker:

i. Inside the loudspeaker, an electromagnet is placed in front of a stationary magnet. The permanent magnet is kept stationary and the electromagnet is energized. When electric pulses pass through an electromagnetic coil, its magnetic field direction changes rapidly.

ii. This means that it vibrates as it moves back and forth before being attracted and repelled by the magnetism. The electromagnet is attached to a cone of flexible material such as paper or plastic, which amplifies the vibrations and allows the sound waves to penetrate the air around our ears.

b. Maglev train:

In magnetolevitation an object is lifted by an electromagnetic field. Two types of magnets are used in magneto hoists. One disengages the wheel and lifts the carriage up off the rail. The other pushes the cart forward faster. The carriage moves through guides that control the position and speed of the carriage based on magnetic theory.

c. Medical Department:

i. Currently electromagnetic fields play an important role in advanced medical equipment such as hyperthermia treatments for cancer and magnetic resonance imaging (MRI). Other devices based on electromagnetic technology can easily scan information about the human body.

ii. Scanners, x-ray equipment and many other medical devices use electromagnetic principles for their operation.

2. கால்வனோமீட்டரை எவ்வாறு அம்மீட்டராக மாற்றுவது?

How to convert a galvanometer into Ammeter?

1) An ammeter is an instrument used to measure the current flowing in an electric circuit. Ammeter offers very low resistance to the current flowing in the circuit so it does not block the current flowing in the circuit. So to measure the current flowing in the circuit, the ammeter should be connected in series in the circuit.

2) To convert a galvanometer into an ammeter, connect a low resistance side connection to the galvanometer.

3) This lower resistance is called the shunt resistance S. The scale of the galvanometer is now indicated in amperes and the shunt of the ammeter is determined by the value of the shunt resistance.

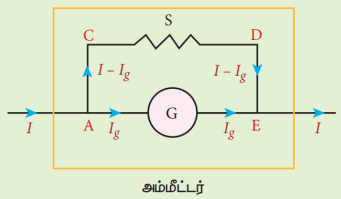
4) Current flowing in the circuit I is Rs. When the current reaches junction A, it splits into two components. Let Ig be the current flowing through a galvanometer of resistance Rg through a path AGE. Current (I - Ig) flowing through path ACDE through parallel resistance S is

5) Correct the parallel resistance and correct the current flowing through the galvanometer, Ig, to show full scale deflection. The voltage difference across the galvanometer and the voltage difference across the parallel resistor are equal to each other.

6) Here the resistance value of the parallel conductor is very low. Hence, the ratio of S / Rg will also be low. This means that the Ra value is also low. This means that the ammeter gives less resistance to the current flowing in the circuit.

7) So connecting an ammeter in series in a circuit does not cause any significant change in circuit resistance and current. The resistance of a positive ammeter is the coil.

8) But in practice the amount of current shown by the ammeter is slightly less than the amount of current flowing in the circuit. If I is the current measured by the positive ammeter and I is the current flowing in the circuit measured by the ammeter.



அம்மீட்டர்

3. சிறு குறிப்பு வரைக. Write a short note on.

i. மெக்லிவ் தொடர் வண்டி

Maglev train

A Maglev train has no wheels. It floats above the rails as a strong magnetic force is imparted by computer-controlled electromagnets. It is the fastest train in the world. It is approximately 500 km/h. fast moving.

ii. ஓமின் விதி

Ohm's Law

a. Georg Simon Ohm, a German physicist established the relationship between current and voltage difference. This is called Ohm's law.

b. According to this law, at constant temperature, the uniform current flowing through a conductor is inversely proportional to the voltage difference across the conductor.

$$V=IR$$

Series connection of resistors

When resistors are in series, the same amount of current flows through each resistor.

$$RS = R1 + R2 + R3$$

Resistors side connection

When several resistors are connected in side connection the sum of the inverses of the resistances of the individual resistors is equal to the sum of the inverses of the resistances. When 'n' resistors of equal value are connected in side connection then the total resistance is R / n.

$$\frac{1}{R_P} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

iii. பாரடேயின் மின்னாற்பகுப்பு விதிகள்.

Faraday's Law

a. **Faraday's law of electromagnetic induction:**
Faraday's Law of Electromagnetic Induction, also known as Faraday's Law, is a fundamental law of electromagnetism that predicts how a magnetic field interacts with an electric circuit to produce an emf (EMF). This phenomenon is called electromagnetic induction.

b. **Faraday's first law of electromagnetic induction:**
Whenever a conductor is placed in a varying magnetic field, an electric field is induced. When the conductor is closed circuit, a current is induced which is called induced current.

c. **Faraday's second law of electromagnetic induction:**
The induced EMF in a coil is equal to the rate of change of the flux linkage.

4. சிறு குறிப்பு வரைக. Write a short note on.

i. மின்னல்

Lightning

1) Lightning occurs when lightning occurs between clouds or between clouds and the earth. During a thunderstorm, air moves rapidly upward. This wind drags the smaller snowflakes upwards.

2) At the same time small water droplets move from top to bottom. When they collide with each other the ice particles become positively charged and move upwards. Water droplets are oppositely charged and move downwards.

3) Thus the upper part of the clouds is filled with positively charged particles and the lower part is filled with negatively charged particles. When these two meet, the electrons in the water droplets are attracted to the anion particles in the ice. This creates electricity and lightning appears.

ii. இடி

Thunder

1) Lightning discharges enormous amounts of electricity and generates heat in excess of 30,000°C. This high level of heat causes the air to expand rapidly and contract again rapidly. As the air rapidly contracts and expands, a shock wave is created there and emits a loud noise. This sound is called thunder.

2) Because the distance between the earth's surface and the clouds is great and the speed of light is much

faster than the speed of sound, sometimes lightning is seen before we hear thunder.

iii. **புவித்தொடுப்பு**

Earthing

a. Earthing is a safety measure to protect us from electric shock when the fuses in electrical appliances fail. Earthing is defined as the process of transferring the electrical energy from the discharge to earth through a wire of low resistance.
b. We get electricity from various sources. A battery is a medium that provides electrical energy. We use battery in wall clocks, mobile phones etc.
c. We use electricity supplied in homes to run refrigerator, air conditioner, washing machine, television set, laptop, water boiler etc. Household appliances such as boilers and washing machines generally have three types of wires: live wire, neutral wire and earth wire.
d. The earth wire is connected to the metal surface of the electrical equipment. It is connected in this way to prevent accidental shocks.
e. For example, in a washing machine the power cord is properly protected by a fuse. There is a chance that the live wire will touch a metal surface if the fuse is blown, perhaps by a short circuit.
f. When the earthing wire is properly connected to the metal surface, the excess current is discharged to the earth and we are protected from electric shock. Since the earth is a good conductor, the leakage current from the faulty insulation will flow through it.
g. Lightning conductor
h. A lightning conductor is a device that helps protect tall buildings from lightning damage. This lightning conductor consists of a metal rod attached to the top of the building in contact with the air. When buildings are constructed, this metal rod and the copper wire from it are attached to the walls of the building.

5. சிறு குறிப்பு வரைக. Write a short note on.

i. மின்னழுத்தம்

Voltage

1) By voltage definition, it is the difference in electric potential between two points. It is the work done in moving charge from one pole to another through a wire.
2) To determine the voltage between two points, both the static electric field and the changing electromagnetic field are considered.

V=IR

ii. மின்னோட்டம்

Current

Electric current is the rate of flow of electrons in a conductor. The SI unit of electricity is the ampere.

I = Q /t

iii. மின்தடை

Resistance

The impedance/resistance of a circuit is the ratio of the voltage applied to the current flowing through it.

R=V/I

6. லித்தியம்–அயன் மின்கலத்தின் சாதகங்கள் மற்றும் பாதகங்கள் வரிசைப்படுத்துக.

List out the Advantages and disadvantages of lithium-ion Batteries.

Benefits:

1) High energy density
2) Low maintenance
3) Variety of applications
4) Longevity
5) No need to chill

Evils:

1) Lithium-ion batteries require a protection circuit to maintain voltage
2) Lithium-ion batteries are more expensive to manufacture than nickel-cadmium
3) Lithium-ion batteries face problems as their usage time increases.
4) Lithium-ion batteries are considered an immature technology.
5) Explosive
6) Sometimes it gets hot

7. ரேடார் வரையறு மற்றும் அதன் நடைமுறை பயன்பாடுகளை வரிசைப்படுத்துக.

Define Radar and list out its Pratical Applications.

1) The full form of radar is radio detection and ranging. It is an electronic device that emits an ultra-high frequency of the microwave segment or radio spectrum that helps identify obstacles to spot or range an object. It can also be used to explore or identify the speed and regularity of the activity object.
2) It was secretly planned and produced by several countries during World War II. In 1940 the US Navy defined the term RADAR.

Applications of Radar:

1) Army
2) Law enforcement
3) Space
4) Remote Sensing of Environment
5) Flight Navigation
6) Navigation of ship
7) Aviation

8. தொகுப்பு சில்லுகளை விவரி.

Explain Integrated Chips.

1) An integrated circuit is also referred to as IC or chip or microchip. A few thousand to millions of transistors, resistors and capacitors are assembled on a small piece of semiconductor like silicon.
2) Integrated Circuits (ICs) are the milestone of modern electronics. Advances in technology and the advent of the VLSI (Very Large Scale Integration) era have made it possible to fit very large numbers of transistors on a single chip.
3) Over conventional circuits, integrated circuits have two major advantages: cost and performance.Technological advances have greatly improved the size, speed, and capacity of chips.
4) Nowadays computers, mobile phones and other home digital devices are made possible by smaller and cheaper integrated circuits. Integrated circuits can function as amplifiers, oscillators, timers, microprocessors, and computer memory.
5) These miniature integrated circuits perform calculations and store data using digital or serial technology. Digital ICs use logic gates that are driven by values of one and one. A DOWN signal given to a digital synthesizer produces a 0 value and a RISING signal produces a 1 value.
6) Digital synthesis circuits are also used in computers, networking equipment and most consumer

electronic devices.

7) Analog ICs or linear ICs operate with continuous values. This means that the component of a sequential synthesis loop can take any value and output another value. Bidirectional synthesis circuits are particularly useful in audio and radio frequency amplification.

9. செயற்கைக்கோள் தகவல்தொடர்பை விவரி

Explain Satellite Communication.

1) Satellite communication is a type of communication that transmits signal between transmitter and receiver through satellite.
2) The information signal is transmitted from the earth station to the satellite in the sky through an uplink (frequency band 6 GHz). It is then amplified by a transponder there and retransmitted to another earth station through the downlink (frequency band 4 GHz).
3) When high frequency radio wave signals travel in a straight line (line of sight), they may encounter tall buildings or mountains or the curvature of the Earth.
4) But this type of communication uses satellites to amplify radio signals through transponders and rebroadcast them through uplinks and downlinks to reach remote locations. Hence it is also called radio repeater in the sky. It has applications in all fields. Some of them are discussed below.

Applications:

Satellites are divided into various categories based on their applications. Some of the satellites are described below.

1) **Meteorological Satellites:** These are used to monitor Earth's weather and climate. These satellites help us predict rainfall, dangerous cyclones and storms by measuring the mass of clouds.
2) **Communication Satellites:** These are used to transmit television, radio, internet signals. For long distance transmission, more than one satellite is used.
3) **Guidance Satellites:** These are involved in determining the geographical position of ships, aircraft or any other object.

பிரிவு - ஆ / SECTION - B

10. தமிழகத்தில் கனிமவள உற்பத்தி மற்றும் அதன் வருவாய் ஆக்கம் குறித்து எழுதுக.

Write about Mineral resources production and its revenue generation scope in Tamilnadu.

Minerals in Tamil Nadu can be divided into three main categories

1) Lignite: These are found in Tamilnadu districts like Nagapattinam, Tiruvarur, Thanjavur. Its main uses are electricity generation and fossil fuels.
2) Graphite: Districts where these are found are Sivagangai, Madurai. Their main use is as electrical conductors.
3) Limestone: The districts where these are found in Tamil Nadu are Ariyalur, Perambalur, Virudhunagaram, Salem, Namakkal and Karur. Their main use is cement production, pharmaceutical products production, chemical products production, metals production.
4) Magnesite: Districts where these are found are Salem, Namakkal and Karur in Tamil Nadu. Their main use is heat bearing stones, magnesium cement and electrical insulating stones.
    1) Efficient mineral management.
    2) Carry out sustainable mining operations
    3) Scientific Excavation
    4) Carrying out systematic and sustainable mineral production

11. சென்னை–கன்னியாகுமரி தொழில் பெருவழித் திட்டத்தை விவரி.

Explain Chennai - Kanniyakumari Industrial Corridor project.

MANIDHANAEYAM FREE IAS ACADEMY – TNPSC GROUP II & IIA
TEST 3 – DECEMBER 2022 – ANSWER KEY

1) The Chennai Kanyakumari Expressway project is being implemented in Tamil Nadu as a part of the East Coast Economic Expressway to promote port-based economic development in the state. This highway covers 23 districts of the state. Asian Development Bank is providing financial support for this project. A detailed project report for this project has been prepared and completed. Further, the Asian Development Bank has sanctioned financial assistance for the following projects:-

1) Upgradation of 16 State Highways at a cost of Rs.6641 crore,

2) Construction of 765 KV sub-station at Virudhunagar and 400 KV sub-station at Ottapidaram and connecting power lines at a cost of Rs.4526 crore.

2) Madurai-Dindigul-Virudunagar-Theni, Thoothukudi-Tirunelveli, Ramanathapuram, Cuddalore-Nagapatnam, Tiruchirappalli-Puthukottai-Sivagangai and Ariyalur-Perambalur six terminals have been identified for setting up industrial terminals in this highway project area. In this two industrial terminals namely Madurai-Dindigul-Virudhunagar-Theni and Thoothukudi-Tirunelveli will be implemented in the first phase. A master plan for the project has been prepared and completed. At present, Chipcot Company is setting up industrial parks at Thoothukudi, Virudhunagar, Theni, Sivagangai, Manaparai, Ramanathapuram and Gangaikondan on this highway with its own funds. Among these industrial hubs, most of the land acquisition activities have been completed in Virudhunagar, Thoothukudi, Sivagangai, Theni, Manakudi (Ramanathapuram) and Chakrakottai (Ramanathaparam) and sector-specific projects such as the International Chamber of Commerce Park in Thoothukudi, the Great Textile Park in Virudhunagar, the Food Park in Theni and the Public Industrial Park in Sivagangai. Steps are being taken to establish industrial parks. Discussions are underway with the Asian Development Bank for further funding for the development of the project.

12. இந்தியாவில் இரும்பு மற்றும் எஃகு தொழிற்சாலைகள் குறித்து எழுதுக.
Write a note on Iron and Steel industries of India.

S.No	Names of industries	Place and State	Year of establishment	Manufacturing products
1	Tata Iron and Steel Company (TISCO)	Jamshedpur-Jharkhand	1911	honey
2	India Iron and Steel Corporation (isco)	Burnpur, Hirapur, Guldi West Bengal	1972	Honey iron, raw steel
3	Visveshwaria Iron and Steel Company (VISL)	Bhadravati, Karnataka	1923	Composite honeycomb and seaweed steel
4	Hindustan Steel Company Russia with technical assistance. (HSL)	Philae-Chhattisgarh	1957	Railway and Shipbuilding Equipment,
5	Hindustan Steel Company with technical assistance from Germany (HSL)	Rourkela- Odisha	1965	Hot and cold rolled plates Electroplated plates and electrical plates.
6	Hindustan Steel Company with technical assistance from UK (HSL)	Durgapur, West Bengal	1959	Alloys, construction materials, railway equipment.

7	Hindustan Steel Company with technical assistance from Russia (HSL)	Bokaro, Jharkhand	1972	Ferrous waste and ferrous metal.
8	Salem Steel Plant	Salem-Tamil Nadu	1982	Stainless steel
9	Vijayanagar Steel Plant.	Dornagal-Karnataka	1984	Long and bar steels
10	Visakhapatnam Steel Plant (VSP)	Visakhapatnam, Andhra Pradesh	1981	Hot metal

13. இந்திய தொழிற்சாலைகள் எதிர்கொள்ளும் முக்கிய சவால்கள் குறித்து விவாதிக்க.

Discuss the major challenges faced by industries of India.

1) Shortage and fluctuation in power supply.
2) Non-availability of large tracts of land.
3) Poor access to credit.
4) High interest rate on the borrowed loan.
5) Unavailability of workers.
6) Lack of technical and vocational training of employees.
7) Lack of proper living environment near industrial estates.
8) Scarcity of raw materials.

14. பொதுநல வழக்கை வரையறுத்து அதன் முக்கியத்துவம் குறித்து விளக்குக.

Define Public Interest Litigation and write its importance.

Public Interest Litigation (PIL):

A Public Interest Litigation (PIL) is a case filed by an aggrieved person or some other body in the court regarding any matter affecting the public welfare. In some cases, the court may proceed arbitrarily on the basis of press reports and on the basis of documents available to the courts. , which can deal with any matter affecting the public interest, such as bad roads, is derived from the American judiciary in the 1970s and is also known as social action litigation.

Importance of Public Interest Litigation (PIL):

1) The purpose of Public Interest Litigation is to approach the Court of Common Pleas under Article 32 and 226 (Supreme Court and High Court) and seek legal remedies.
2) PIL is an important tool for social change and for upholding the rule of law and hastening the balance between law and justice.
3) The original purpose of public interest litigation is to provide justice to the poor and marginalized people.
4) It is an important tool to reach those denied human rights.
5) It democratizes access to justice for all. Any competent citizen or organization can file petitions on behalf of those who are unable or absent to do so.
6) It helps in judicial monitoring of government institutions like prisons, asylums, shelters etc.
7) It is an important tool for implementing the concept of judicial review.
8) Increased public participation in judicial review of administrative action is ensured by initiation of public interest litigation.

15. ஆம்புட்ஸ்மேன் (Ombudsman) குறித்து ஒரு குறிப்பு வரைக.

Give an account on Ombudsman.

Appearance:

1) 1809 - Introduced in Sweden.
2) 1966 - Recommendation of Administrative Reform Commission in India.
3) Creation of Lokpal, Lok Ayukta based on this.

Purpose:

1) Investigate and administer justice in crimes against central state government officials.
2) Civil grievances.
3) Public grievances are public grievances due to corruption etc.

Grievance Commissioner- 1966:

1) Regulating the activities of government bodies for redressal of citizens' grievances.
2) Giving them effective leadership.
3) Grievance Redressal Officers appointed in Ministries.

Reasons for formation of ombudsman:

1) Excessive proliferation of government activities.
2) Discretionary powers vested in officers.
3) Delegated Acts.
4) Expectations of citizens from authorities.
5) Inability to control the executive branch by the legislative branch.
6) Cost of delay caused by courts.
7) Loss of confidence in governance among citizens.
8) Need for independent organization.

Benefits:

1) The medium is infallible.
2) Apolitical.
3) Beyond the regular managerial hierarchy.

Disadvantages:

1) Advisory system only.
2) No administrative function can be modified.
3) Lack of constitutional recognition.

16. லோக்பால் மற்றும் லோக் ஆயுக்தா குறித்து எழுதுக.

Write about Lokpal and Lokayukta.

Lokpal:

1) Recommendation of Administrative Reforms Commission since 1966
2) Scandi Navion model
3) Lokpal Bill was passed in 2013 and became law in 2014.

Purpose:

1) Elimination of corruption in public works
2) Holding public servants including the Prime Minister accountable

System:

1) Chairman – 1 (Retired Chief Justice of Supreme / High Court)
2) Members – 8
3) 50% members belong to Scheduled Tribes, Minorities, Women
4) Tenure – 5 years / 70 years
5) No reappointment.

Selection Committee:

1) Prime Minister
2) Speaker of the Lok Sabha
3) Leader of Opposition in Lok Sabha
4) Supreme Court Judge
5) Legal expert

16th Amendment:

1) All Public Servants
2) Includes non-governmental organizations receiving foreign donations.

Limitations of Lokpal:

1. Lokpal cannot initiate a case against any Government servant by itself.
2. Emphasizes form rather than nature of complaint.
3. Prevents complaints from coming to Lokpal by providing severe punishment for false (m) frivolous complaints against government servants.
4. Anonymous complaints are not allowed.
5. Legal aid provided to the Government servant against whom the complaint is lodged
6. Limitation of 7 years for filing complaints
7. Very non-transparent method of handling complaints against the Prime Minister

Lok Ayukta:

1) States should set up Lokayukta on the model of Lokpal.
2) Investigate offenses against Ministers of State, Chief Minister
3) 1971 – First introduced in Maharashtra
4) Its authority (m) function is not uniform across the country.

Duties and Powers:

1) Supervise and regulate intelligence agencies including the Central Intelligence Agency.
2) Union Ministers including Prime Minister will come under the jurisdiction of Lokpal.
3) Central Intelligence Agency officers may be transferred by Lokpal.
4) Special courts will be set up to try the cases.
5) The Central Bureau of Investigation may appoint a prosecution team with the approval of the Lokpal.
6) The complaint is in the language in the 8th Schedule.
7) Protection of complainant.

Drawback:

1) Advisory system only.
2) No power to punish.
3) Judiciary, Army, Navy, Intelligence are exempted.
4) Success of Lokpal depends on its functioning.
5) Its appointment is not free from political influence.
6) Transparency in appointment is essential.
7) Lack of constitutional recognition.
8) Variation of its structure by month, state

Procedure:

1) Report in 60 days
2) Result in 30 days
3) Maximum tenure – 2 years

Highlights:

1) Free organization.
2) No political interference.
3) Inquiry is transparent.
4) It has the jurisdiction of civil court.

17. உச்ச நீதிமன்ற கொலீஜியம் அமைப்பு மற்றும் தேசிய நீதிபதிகள் நியமன ஆணையம் (NJAC) குறித்து ஒரு குறிப்பு வரைக.
Give an account on Supreme Court Collegium System and National Judicial Appointments Commission (NJAC).

Collegium Structure:

1) The collegium system was created by the "Third Judges Case (1998)" and has been in force since 1998. It is used for appointments and transfers of judges in High Courts and Supreme Courts.
2) There is no mention of collegium in the Constitution of India or subsequent amendments.
3) The SC collegium is headed by the CJI (Chief Justice of India) and comprises four senior judges of the court.
4) An HC collegium is headed by its Chief Justice and four senior judges of that court.
5) The names recommended for appointment by the High Court Collegium will reach the Government only after the approval of the Chief Justice and the SC Collegium.

National Judicial Appointments Commission:

1) A five-judge Constitution Bench based on a 1993 judgment declared the National Judicial Appointments Commission (NJAC) Act and the Constitution (Ninety-Nine Amendment) Act, 2014 unconstitutional in October 2015.
2) NJAC will also recommend names for appointment of Supreme Court Judges and appointment and transfer of High Court Judges.

Composition of NJAC

1) Chief Justice of India
2) 2 Senior Judges of the Supreme Court
3) Law Minister of India
4) 2 core members selected by the Selection Committee

18. இந்தியாவில் நிர்வாக தீர்ப்பாயங்களின் பங்களிப்பு குறித்து ஆராய்க.
Analyse the role of Administrative Tribunals in India.

1) The 42nd Amendment Act of 1976 incorporated the Tribunals into the Constitution of India.
2) It includes Sections 323 A and 323 B which establish tribunals to deal with administrative and other issues.
3) Section 323 A deals with administrative tribunals, whereas section 323-B deals with tribunals for other matters.
4) Administrative Tribunals adjudicate disputes, determine rights between contending parties to redress grievances of employees of Government Public Sector Undertakings, local bodies and perform other functions.
5) It is vested in the judicial power of the State and thereby performs quasi-judicial functions as distinguished from purely administrative functions.
6) It follows the principles of natural justice and is bound to act judicially.
7) It acts transparently, fairly and impartially.
8) It is not bound by the strict rules of procedure and evidence prescribed by the Court of Civil Procedure.

MANIDHANAEYAM FREE IAS ACADEMY – TNPSC GROUP II & IIA
TEST 3 – DECEMBER 2022 – ANSWER KEY

அலகு – II
UNIT - II

(10 x 12 = 120)

1. **மின்மோட்டார் என்றால் என்ன? அதன் அமைப்பு மற்றும் செயல்படும் விதத்தை விவரி.**
What is electric motor? Explain its structure and working Principle.

1. An electric motor is a device that converts electrical energy into mechanical energy. Electric motors are important in modern life. They are used in water pump, fan, washing machine, juicer, flour mill etc.

2. We have already studied that a force acts on a conductor placed in a magnetic field and causes the conductor to move. This is the principle of electric motor.

3. To understand how a motor works, it is necessary to understand how the turning effect occurs on an electric coil placed inside a constant magnetic field.

4. A simple coil of wire is placed between two poles of a magnet. Now look at the segment AB of the coil of wire. The direction of current is towards B, but the direction of current is opposite in conductor section CD.

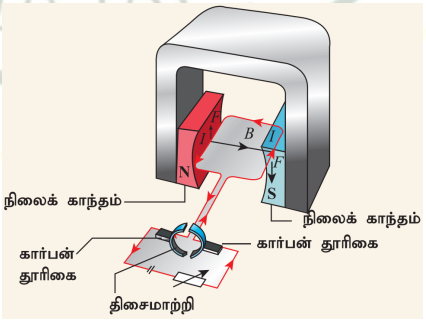
5. Since the currents flow in opposite directions in conductor segment AB and CD, their directions of motion are also opposite according to Fleming's left-hand rule. The force on both ends of the coil of wire is in opposite directions so they rotate.

6. If the current is through ABCD, the coil of wire will rotate first clockwise and then anti-clockwise. If the coil is to operate in the same direction i.e. clockwise, the current must flow through ABCD in the first half of the cycle and through DCBA in the second half. A small device called a split ring diverter is used to change the direction of the current.

7. There is no current in the coil when the gap in the split loop is connected to terminals X and Y. But, as the coil moves, it continues to move forward and one of the two split rings comes into contact with the carbon brushes X and Y. This reversal of current occurs every half cycle and causes continuous rotation in the coil.

The rotational speed of the coil can be increased by the following factors:

1) Increasing the strength of the current in the wire coil.
2) Increasing the number of wire coils
3) Increasing the surface area of the wire coil
4) Increasing the strength of the magnetic field.



2. **காஸ் விதியை விவரித்து மற்றும் அதன் நடைமுறை பயன்பாடுகளை வரிசைப்படுத்துக?**
Explain Gauss Law and list out its Pratical Applications?

Gauss's law

1. According to Gauss' law, the total flux attached to a closed surface is 1/ε0 times the charge attached by the closed surface.

2. For example, a point charge q is placed inside a cube of edge 'a'. Now, according to Gauss' law, the flux

on each face of the cube is q/6ε0.

3. Electric field is the basic concept of knowledge about electricity. Generally, the electric field of a surface is calculated by using Coulomb's law, but to calculate the electric field distribution on a closed surface, we need to understand the concept of Gauss's law.
4. It describes a closed electric charge or an electric charge on a closed closed surface.

Applications of Gauss' Law:

1) Electric field due to a uniformly charged infinite straight wire.
2) Electric field due to uniformly charged infinite plate sheet.
3) Electric field due to a uniformly charged thin spherical shell.
4) Choose Gaussian surface, estimation of electric field becomes easy.
5) Use symmetry to simplify problems.
6) Remember, the Gaussian surface does not necessarily coincide with the real surface, i.e. the Gaussian surface can be inside and outside.

3. மீத்திறன் கணிப்பொறி என்றால் என்ன? இந்தியாவில் மீத்திறன் கணிப்பொறி தோன்றி வளரும் விதத்தை குறித்து எழுதுக.

What is supercomputer? Trace the origin and development of supercomputers in India.

Supercomputer:

1. Supercomputers have a higher level of computing performance compared to a normal utility computer.
2. Its performance is measured in FLOPS (floating point operations per second).
3. High speed and good memory are two requirements of a super computer.
4. Performance is usually rated in petaflops (1 followed by 15 zeros). The memory is on average 250000 times that of a typical computer.

Origin of super computer:

1) Param 8000 was India's first supercomputer.
2) Developed in 1991, it is a series of gigaflop supercomputers developed by Vijay B Bakhtar, who is known as "the architect of India's initiative in supercomputing".
3) PARAM stands for 'Parallel Machine' and was developed by Center for Advanced Computer Development (CDAC). Difficulties in procuring supercomputers from abroad culminated in the development of India's first indigenous supercomputer.
4) 256 - Developed as a nozzle engine, which was exported to Germany, England and Russia.
5) India's fastest supercomputer is Param Siddhi-AI.
6) PARAM series of supercomputers include PARAM 8600, PARAM 9000 and PARAM 10000. They are used for both public and private purposes.
7) PARAM – Siddhi - Ranked 62nd globally.

National Supercomputing Mission:

1) The National Supercomputing Mission (NSM) was launched in 2015 with the objective of making India one of the leading countries in supercomputing and improving its ability to solve challenging problems of national and international importance.
2) It also tried to equip the scientific community with avant-garde technologies to carry out world-class research in their respective fields.
3) It helps in “Digital India” and “Make in India” initiative.

4. மின்சார திருத்த மசோதா, 2022. கூர்ந்து ஆராய்க.

Critically examine the Electricity (Amendment) Bill, 2022.

Electricity Amendment Bill, 2022:

The Electricity Amendment Bill, 2022 aims to provide open access to the distribution networks of electricity

suppliers to many players and allow consumers to choose any service provider.

The Bill seeks to amend the Electricity Act 2003 to:

1) Under non-discriminatory "open access" rules with the aim of facilitating the use of distribution networks by all licensees, enabling competition, improving efficiency of distribution licensees and improving services to consumers and ensuring sustainability of the electricity sector.

2) Facilitating non-discriminatory open access to the distribution network of the distribution licensee.

3) To make provision as per standard revision in one year apart from mandatorily fixing maximum ceiling and minimum charges by the appropriate commission.

4) Changing the rate of punishment from imprisonment or fine to fine.

5) To strengthen the functions discharged by the Regulators.

Arguments against the Bill:

1) 'Electricity' is enumerated in Clause 38 of List III of the Seventh Schedule of the Constitution, so the Central and State Governments are empowered to make laws on the subject.

2) The federal philosophy of Indian polity, which is part of the 'basic structure' of the Constitution of India, is violated by the proposed amendments.

3) Electricity for farmers and people below the poverty line will eventually disappear.

4) Only government discoms or distribution companies have universal power supply obligations.

5) Therefore, private licensees will prefer to supply electricity in profitable areas - industrial and commercial consumers.

6) If this happens, the profit making areas will be taken away from government discoms and they will become loss making enterprises.

5. **தமிழகத்தில் தொழில் வளர்ச்சி மற்றும் விரிவாக்கத்திற்கு திறவுகோலாக செயல்படும் முகமைகளின் செயல்பாடுகளை விவரிக்க.**

Elucidate the role of agencies that have played a key role in industrial development and expansion in Tamilnadu.

1) Tamil Nadu Industrial Investment Corporation Limited (TIC - Tamil Nadu Industrial Investment Corporation Ltd) 1949.

2) Tamil Nadu Industry Investment Corporation provides limited financial assistance for establishment of new industries and expansion of existing industries. It helps all types of businesses but especially 90% of micro, small and medium enterprises.

3) Tamil Nadu Industrial Development Corporation (TIDCO) 1965.

4) It is another government agency which helps to establish industrial parks and develop industries in our state.

5) Tamil Nadu Small Industries Corporation (TANSI – Tamil Nadu Small Industries Corporation Ltd) 1965.

6) In 1965, the Tamil Nadu Small Industries Corporation (TANSI) took charge of the small scale industries established and implemented in the organizational sector by industrial and commercial enterprises. It was the first industrial institute established for small enterprises.

7) Tamil Nadu Small Industries Development Corporation (TANSIDCO) 1970.

8) Tamil Nadu State Small Industries Development Corporation (TANSIDCO) is a government agency established in 1970 by the Government of Tamil Nadu for the development of small scale industries in our state. The agency also provides grants and technical assistance to start-ups in the small scale industry sector.

9) State Industries Promotion Corporation of Tamil Nadu (SIPCOT - State Industries Promotion Corporation of Tamil Nadu), 1971.

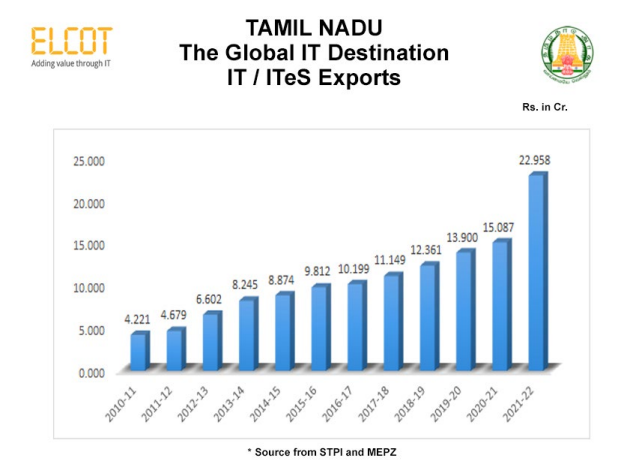
10) Tamil Nadu Government Industrial Development Corporation (Sipcot) was established in 1971 for industrial development and set up industrial estates.

11) Tamil Nadu Industry Guidance Bureau (Guidance Bureau) Investors Guidance.

6. இந்தியாவில் தமிழகம் தகவல் தொழில்நுட்பத் துறையில் ஓர் முன்னோடி- காரணங்களை ஆராய்க.

Tamilnadu is the Pioneer in Information Technology industry in India- Analyse the reasons.

1) Tamil Nadu was one of the first states in India to develop a comprehensive IT policy.
2) As early as 1997, the State Government released an Industrial Policy for the Information Technology Sector to achieve the targets set out in the Ninth Five Year Plan.
3) Focus on IT sector as an engine of development of the state.
4) However, the pace of change in the IT industry necessitated a re-examination of this plan. In 2002, the Government of Tamil Nadu released a new Information Technology Policy, which aimed to bring prosperity to the state and make Tamil Nadu a knowledge-empowered state.
5) The advent of the Internet has turned the world into a global village and ushered in an era of global provision of IT-based services.
6) This revolution will create more than four million jobs in the knowledge sector (IT and ITES industries).
7) Tamil Nadu is uniquely poised to exploit this great opportunity because of its educated workforce and good governance.
8) Government of Tamil Nadu released ITES Policy in 2005 to highlight the benefits of ITES investment in Tamil Nadu.
9) Following this the ICT Policy 2018 was released by the Govt to keep up with the pace of change in the IT sector.
10) Quality Higher Education Institutions.
11) Optimum framework for IT development by ELCOT company.
12) State with most IT Parks. Example: (TIDEL Park, Chennai)



7. ஏதேனும் இரண்டிற்கு விடை அளிக்க. Attemt Any two

i. டெல்லி – மும்பை தொழில்துறை வழித்தடம்.

Delhi – Mumbai Industrial Corridor.

Delhi-Mumbai Industrial Corridor (DMIC)

a. Includes Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, Gujarat and Maharashtra.
b. The route covers a length of 1483 km between India's political capital Delhi and commercial capital Mumbai.
c. The USD 100 billion project is being financed through Japan Investment Receipts from the Government of India, Japanese companies' investments and loans from Indian companies.
d. The DMIC project aims to develop industrial cities of the future by promoting "High Speed - High Capacity" connectivity provided by Western Dedicated Freight Corridors.

ii. பெங்களூர் – மும்பை தொழில்துறை வழித்தடம்.

Banglore – Mumbai Industrial Corridor.

1) Includes Maharashtra and Karnataka.
2) It is developed with the help of Britain (UK).
3) Delhi Mumbai Industrial Corridor Development Corporation (DMICD) and UK Trade and Investment (UKTI) have been decided as nodal agencies on Indian and UK side respectively.

iii. பாதுகாப்பு தொழில்துறை வழித்தடம்.

Defence Industrial Corridor.

Currently, two defense industrial corridors are being developed in India, one in Uttar Pradesh and the other in Tamil Nadu. Many private companies will join hands with the Indian government to achieve the country's vision of self-reliance in defence.

Uttar Pradesh Defense Industrial Corridor:

1) Uttar Pradesh Defense Industrial Corridor is being developed by Uttar Pradesh Expressway Industrial Development Authority or UPEIDA.
2) A total of 196.7853 hectares of land has been acquired in Uttar Pradesh for development of Uttar Pradesh Defense Industrial Corridor.

Tamil Nadu Defense Industrial Corridor:

1) The Tamil Nadu Corridor is being developed by the Tamil Nadu State Government (TIDCO).
2) A total of 283.28 hectares of land has been acquired in Tamil Nadu for development of Tamil Nadu Defense Industrial Corridor.
3) It covers the district of Chennai, Coimbatore, Hosur, Salem and Trichy.

8. இந்தியாவில் பெட்ரோலியம் மற்றும் இயற்கை எரிவாயு அகழாய்வுபற்றி விரிவாக விளக்குக.

Explain in detail about Petroleum and natural gas explorations in India.

1. Influencing decision making for all other major sectors of the economy.
2. India's economic growth is closely related to its energy demand, hence, demand for oil and gas is expected to increase, making the sector more investment-friendly.
3. As of 2021, India retained its position as the world's third largest oil consumer.
4. Government has adopted many policies to fulfill the increasing demand. It has allowed 100% Foreign Direct Investment (FDI) in several sectors of the sector including natural gas, petroleum products and refineries.
5. The FDI limit for public sector refinery projects has been raised to 49%, without any disinvestment or dilution of domestic equity in existing public sector enterprises.
6. Today it attracts both domestic and foreign investment, as attested by the presence of companies like Reliance Industries Limited (RIL) and (GAIL) India.
7. The industry is expected to attract USD 25 billion in investment in exploration and production by 2022.
8. India is already a refining hub with 21 refineries, and expansion is planned to tap foreign investment in export-oriented infrastructure, including product pipelines and export terminals.
9. India's consumption of petrol products during April-October, 2022 was 126.12 MMT.
10. India's LNG imports in October 2022 stood at 2,411 million metric standard cubic meters (MMSCM).
11. The total production of LNG in the same month was 2,883 mmscm.
12. Exports of petroleum products from India reached 62.7 MMT in FY22.
13. Natural Gas Corp Limited (ONGC) Company Rs. 6,000 crore (US$ 800 million) in its petrochemicals division (ONGC Petro Additions Ltd.) to meet its equity requirements.

14. Hydrocarbon Exploration and Licensing Policy (HELP), newly formulated Hydrocarbon Exploration and Licensing Policy.

9. கருப்பு பணம் என்றால் என்ன? அதற்கான காரணங்கள் மற்றும் தீர்வுகள் குறித்து எழுதுக.

What is Black Money? Write about its causes and remidies.

Black Money:

1) Income involved in black market (a) Untaxed income.
2) Unaccounted money hidden from the taxman

Causes of Black Money:

1) Scarcity of materials

1. Black money is a source of scarcity of goods either natural or (a) artificial.
2. Successive restrictions are introduced to curb black money.

2) Licensing procedure

1. System of control permits, quotas, licenses is associated with mis-distribution due to under-supply of goods.
2. This increases black money.

3) Role of industry

1. Regulator of limited PSUs procures goods at very low cost.
2. But he charges more for the product. It does not show this difference in private.

4) Kidnapping

1. When India had rigid exchange systems, high-cost commodities such as gold, silver, textiles, and electronics were subject to customs duties.
2. Bringing these goods in defiance of the authorities is smuggling.

5) Structure of tax

When the rate of tax is high, it causes the emergence of black money.

Recent Efforts to Control Black Money in India:

1. A Special Inquiry Committee on Black Money was set up under 2 retired judges of the Supreme Court.
2. Black Money (Undisclosed Foreign Income (M) Assets) and Taxation Act - 2015
3. A special committee was set up to investigate the revelations of recent currency leaks in Panama.
4. Double taxation avoidance agreements.
5. Foreign Account Tax Compliance Act.
6. Prevention of Money Laundering Act- 2002
7. Benami Transactions (Prohibition) Amendment Act - 2016
8. Clean Money Operation 2017, Commencement on 31st January
9. Lokpal, Lok Ayukta Act
10. The Real Estate (Regulatory (M) Development) Act - 2016
11. Devaluation – November 8, 2016
12. THE FUGITIVE ECONOMIC OFFENDERS ACT, 2018.
13. India is a member of the International Financial Supervisory Service (FATF).

10. மத்திய புலனாய்வு ஆணையத்தின் (CVC) அமைப்பு, பணிகள் மற்றும் பொறுப்புகள் குறித்து எழுதுக.

Write a note on Central vigilance commission's (CVC) structure, functions and responsibilities.

Appearance:

1) Nomination – Santhanam Group
2) Central Govt Administrative Resolution - 1964
3) Statutory status obtained in 2003, (Central Corruption Vigilance Commission Act, 2003)

4) Purpose – System to prevent corruption in government public works

System:

1) Chairman – 1
2) Members – 2
3) Appointment – President
4) Tenure – 4 years /65 years, whichever is earlier.
5) Headquarters - New Delhi
6) Pay (M) Concession – Affiliated to UPSC

Selection Committee:

1) Prime Minister
2) Leader of Opposition
3) Home Minister

Duties and Responsibilities:

1) Investigating allegations of corruption against public servants.
2) Expediting and finalizing investigations into corruption complaints.
3) Receiving reports from investigative agencies and supervising and streamlining their anti-corruption activities.
4) Taking over corruption cases for further action.
5) Revise anti-corruption laws and procedures to ensure integrity in public administration.
6) Submitting an annual report on the activities of the Commission to the Ministry of Home Affairs.
7) CVC has identified and listed 27 types of corruption.
8) Any authorities under the Prevention of Corruption Act 1988 shall conduct an inquiry against.
9) These have the jurisdiction of the Civil Court.

11. ஊழலை ஒழிப்பதில் நீதித்துறையின் பங்களிப்பு குறித்து கூர்ந்து ஆராய்க.

Critically examine the role of judiciary in eradication of corruption.

1) Judiciary plays an important role in eradicating corruption
2) Constitution which gave unlimited powers to the Judiciary through Articles 226 (High Court) and 32 (Supreme Court) which were exercised by the Judiciary in the interest of the people.
3) According to Section 3 of the Prevention of Corruption Act, 1988, the trial of cases under the Prevention of Corruption Act, 1988 shall be decided only by Judges designated as "Special Judges".
4) Corruption has been identified as the foundation of major challenges and economic woes facing the nation in recent times.
5) If the Judiciary is corrupt, then there will be no such thing.
6) Judicial corruption affects the unwarranted access and outcomes of the judiciary.
7) Results will be unfair and unpredictable and consequently the rule of law will not prevail.
8) Judiciary is a public institution mandated to provide essential checks on other public institutions.
9) A fair and efficient judiciary is key to anti-corruption efforts.
10) Judicial corruption appears to be a global problem. It is not limited to a particular country or region.
11) Judiciary in India has always been commendable for its role in eradicating social evils and bringing justice to the people.
12) Separate Courts to try corruption.Example: (Cases against People's Representative)

12. தேசிய மற்றும் மாநில தகவல் ஆணையத்தின் கட்டமைப்பு மற்றும் பணிகளை விவரிக்க.

Describe the structure and functions of State and National information commission.

State Information Commission:

Appearance:

1) Creation under Right to Information Act - 2005
2) Formed in 2005 in Tamil Nadu

System:

1) Chief Information Commissioner – 1
2) Information Commissioners – not exceeding 10 (currently 6)
3) People with knowledge related to society, science, technology, law, management

Tenure (m) Appointment:

1) 5 years / 65 years
2) Appointment – Governor

Authority:

1) Jurisdiction vis-à-vis Civil Court
2) Any person may be summoned as a witness in writing during the trial.
3) Files can be obtained from any organization.

Central Information Commission:

Appearance:

1) Formed under Right to Information Act - 2005
2) Unconstitutional

System:

1) Chief Information Commissioner – 1
2) Information Commissioners – 10
3) Legal, scientific, social, management, technical experience and knowledge

Selection Committee:

1) Prime Minister
2) Leader of Opposition
3) Committee of Cabinet

Tenure (m) Appointment:

1) 5 years / 65 years
2) Appointment – President

Tasks:

1) 5 years / 65 years
2) Appointment – President

Complaints and investigations to:

1) A person who has been denied the requested information
2) The information is not made available within the prescribed period
3) One who considers the fee charged to be excessive

Arbitrary Authority:

In respect of any matter, an inquiry may be automatically ordered if there is sufficient cause.

Jurisdiction vis-à-vis the Corporation Law Court:

1) Calling the individual to trial
2) Receiving files from any court or office
3) Finding and examining documents

Commands to other systems:

1) Requirement to furnish information in specified form

2) Allocation of training to officers
3) Annual Report from Public Sector Officers

அலகு - III
UNIT-III

(6 x 15 = 90)

1. நிறமாலையின் வகைகளை, வெளியிடு – உட்கவர் அடிப்படையில் வகைப்படுத்தி விவரிக்க.

Describe and classify the types of emission spectrum, based on its coverage.

The emission spectrum of a chemical element or chemical compound is the spectrum of frequencies of electromagnetic radiation emitted when an atom or molecule changes from a higher energy state to a lower energy state.

Atomic Spectrum:

1. When a ray of white light falls on a prism, we observe that it experiences refraction twice.
2. Once it travels from a rarer medium (air) to a denser medium (glass) and again from a denser medium (glass) to a rarer medium (air).
3. Finally, we observe a band of colors, called the spectrum, formed from a ray of white light.
4. If we look more closely at this spectrum, the shorter wavelengths of color are more deviated and vice versa.
5. Hence, a spectrum of colors is seen from red to violet, where red has the longest wavelength and experiences the least deviation.
6. This type of spectrum is called a continuous spectrum because violet merges into blue, blue into green, and so on.
7. However, the emission spectrum of atoms in the gas phase does not exhibit a continuous distribution of wavelengths from one color to another.
8. In contrast, the emitted light has a specific wavelength with dark spaces between them. Such spectra are called atomic spectra or line spectra

Absorption Spectrum:

1) Unlike an emission spectrum, an absorption spectrum is like the photo negative of an emission spectrum.
2) In order to observe the absorption spectrum, electromagnetic radiation is bombarded on a sample that absorbs radiation of certain wavelengths.
3) The wavelength of radiation absorbed by the material contributes to the missing wavelength, which leaves dark gaps in the bright continuous spectrum. Each element has its own unique line emission spectrum.
4) The study of emission spectrum or absorption spectrum is called spectroscopy.

Hydrogen emission spectrum

1) The hydrogen spectrum is the main evidence that shows that the electronic structure of the atom is being measured.
2) When an electric discharge is passed through a gaseous hydrogen molecule, the hydrogen atoms in the molecule split apart.
3) It leads to emission of electromagnetic radiation by energetically excited hydrogen atoms.
4) Hydrogen emission spectrum consists of radiations of distinct frequencies. These series of radiations are named after the scientists who discovered them.

2. தமிழ்நாடு மின் கல வாகனக் கொள்கை 2019 ன் முக்கிய சாராம்சங்களை வரிசைப்படுத்துக.

List out the salient features of Tamil Nadu electric vehicle policy 2019.

1. The policy will support and attract investments of Rs 50,000 crore for EV manufacturing and also ensure

creation of 1.5 lakh new jobs.

2. Proposed 100% road tax exemption for private and commercial electric vehicles till the end of 2022 for all EVs like two-wheelers and three-wheelers, cars, buses and commercial vehicles.
3. Special incentives will be given to manufacturers of EVs and their components who have invested at least Rs.50 crore, which will create at least 50 jobs.
4. 100% refund of State GST (SGST) on electric vehicles manufactured and sold in Tamil Nadu till 2030.
5. 15% and 20% capital subsidy for investments in EV manufacturing and battery manufacturing till 2025 respectively.
6. Dedicated EV parks in major auto manufacturing hubs.
7. 15% subsidy on cost of land/property for electric vehicle or component manufacturing project in State Industrial Parks. For projects launched in southern districts, investors will get 50% subsidy till 2022.
8. 100% exemption from stamp duty on purchase of land for establishing EV and EV part units.
9. 100% exemption from electricity tax for EV or component manufacturing units set up in Tamil Nadu.
10. Infrastructure projects can be financed either by the government on its own or through a public-private partnership.
11. Certain changes in laws/regulations of building and construction for integrated charging infrastructure at planning stage.
12. In tax concessions, 100 percent refund of State GST (SGST) to manufacturing companies on sales up to December 31, 2030, up to 100 percent of eligible investment.
13. The registration number shall be displayed in yellow color on green background for transport vehicles and white color on green background for all other EVs to differentiate electric vehicles from other vehicles.
14. EV related and charging infrastructure generating units will be exempted from 100% electricity tax till December 2025.
15. 100% stamp duty exemption for transactions till December 2022 for units acquiring property by way of sale or lease.
16. Units acquiring assets from SIPCOT, SIDCO or other government agencies will get 15% subsidy on cost and 50% subsidy if investing in southern districts.
17. Employment incentives will be provided to units in the form of reimbursement of employer's contribution to EPFO for all new jobs created till December 2025.
18. Government to provide 20% higher capital subsidy on eligible investment over 20 years in manufacturing EV batteries.
2. Building and Construction Acts will be amended to ensure that charging infrastructure is integrated at the planning stage for all new constructions and apartments in cities.
3. Emphasis is placed on research and development (R&D) related to EV.
4. EV – Batteries are structures suitable for recycling.

3. தமிழ்நாடு: மருத்துவச் சுற்றுலாவுக்கான முன்னணி இலக்கு – விவரிக்க.

Tamil Nadu: The Leading Destination for Medical Tourism – Illustrate.

1) Tamil Nadu is one of the pioneers of medical tourism in India. First in 1978 Pharmaceutical Manufacturing Park.
2) Attracting a good number of international health tourists, the state has always been a major hub for medical diagnosis and treatment.
3) It ranks first in the country in terms of number of vaccinated children and boasts of thousands of eminent medical practitioners specializing in various fields of medicine.

4) More than 15 lakh patients visit Tamilnadu annually for medical diagnosis and treatment.
5) Tamil Nadu has the best infrastructure in the country for medical tourism.(Chennai-Medical Capital of India)
6) It has more than 12,500 hospital beds, about 10 lakh registered doctors, 48 government-run medical colleges and hospitals; and hundreds of private specialty and multi-specialty hospitals.
7) Besides, there are 1,491 Indian system hospitals and hundreds of Ayurvedic, Siddha, Unani and Homeopathic resources.
8) In support of these there are 84 pharmaceutical colleges and around 400 pharmaceutical manufacturing companies in the state.
9) Considering the importance of medical tourism, Department of Tourism in association with hospitals established Medical Tourism Information Center at Tamil Nadu Tourism Complex and Travel Desks in Chennai and Madurai.
10) A core committee consisting of medical experts and Directorate of Medical Education monitors the system.
11) Tamil Nadu is also a center of traditional Indian healing systems.
12) Siddha system, one of India's oldest systems of medicine, began in its present form in Tamil Nadu in the 16th century (although the oldest text that mentions it is the 6th or 7th century Thirumantram by Tirumular).
13) The word 'siddha' means 'achievements' and the eighteen siddhas were saints who contributed to the development of this system of medicine.
14) Tamil Nadu has always been a major hub for medical diagnosis and treatment and now serves as a hub for medical services.
15) With the abundance of excellent hill resorts, Tamil Nadu has great potential to further expand the structure of health tourism and establish itself as a Siddha and health tourism destination.
16) Apart from hospitals, home healthcare and home nursing are also excellent in Chennai.
17) Medical tourists who need to recover after treatment may avail such facilities and respite and palliative care.
18) Lead in Medical index (IMR, MMR) in India compared to other states.
19) State leading in Transplant Organ Surgery in India.
20) TICEL Zoo is situated.
21) Medical Devices Manufacturing Park is located at Kanchipuram to increase production of medical devices.

4. இந்தியாவின் முக்கிய தொழில்துறைகளை விவரிக்க.

Enumurate the major Industries of India.

Places where raw materials are converted into manufactured goods by machines are called industries.
Agro based industries

1) Weaves:

Weaves are the place where cotton, jute, wool, silk and synthetic fibers are produced. With over 50 million spinning machines, 842000 spinners and 3400 looms, India is the second largest in the world in this sector.

2) Cotton Weaves:

1. Traditional industries like handlooms, handicrafts, small power looms etc. are sources of employment for lakhs of rural and peri-urban people. Cotton textiles account for 7 percent of industrial production, 2 percent of India's GDP, and 15 percent of export earnings. The sector is one of the largest sources of

employment in the country. Presently there are 1719 cotton looms in India. Out of these 188 looms are public sector enterprises, 147 are co-operatives and 1284 looms are private sector enterprises.

2. Presently India is the third largest producer of cotton in the world. It is the leading country in the number of looms and spinning tools. Currently, cotton weaving is the largest modern industrial sector in India. The sector accounts for 16 percent of industrial capital and 14 percent of industrial output and employs 20 percent of the workforce in these industries.
3. Cotton mills in Mumbai and its suburbs. Mumbai is known as the "Manchester" of India because of its abundance. The karisal soil found in the state of Maharashtra, humid climate, Mumbai port, easy availability of hydroelectric power, market facility and good transport facility are the reasons for the large number of cotton weaving mills in Mumbai.
4. Maharashtra, Gujarat, West Bengal, Uttar Pradesh and Tamil Nadu are the states where cotton weaving is concentrated. Coimbatore in Tamil Nadu has the largest number of cotton weaving mills. Thus Coimbatore is known as the “Manchester” of South India. Out of 435 handlooms in Tamil Nadu, 200 handlooms are located in Coimbatore. Erode, Tirupur, Karur, Chennai, Tirunelveli, Madurai, Thoothukudi, Salem and Virudhunagar are other important weaving towns of the state.

3) Jute mills

1. Jute is the cheapest available fiber. It is used to make shells and sacks.
2. Nowadays jute is woven together with cotton and wool. India alone accounts for 35% of the world's total production of jute products. Jute mills are the second largest textile industry in India after cotton mills. Natural hemp is also known as the “golden fiber crop” because it is renewable, biodegradable, and eco-friendly.
3. India's first jute mill was started in 1854 by Englishman George Auckland at Rishra near Kolkata. India is the largest producer of jute and the second largest producer of jute products after Bangladesh. Jute is used to make bags, tent cloths, slippers, carpets, curtains, ropes, cloths, footstools etc. Currently, fur is mixed with flexible furniture such as insulated covers.
4. Also these are mixed with cotton to make blankets and carpets. Jute production areas are located along the Hooghly River in West Bengal. Dittagarh, Jagatat, Budge-Budge, Howrah and Bhadreswar are the main jute product manufacturing centres. Andhra Pradesh, Bihar, Assam, Uttar Pradesh, Chhattisgarh and Odisha are other jute producing states.

4) Silk weavings

1. India has been famous for silk production since ancient times. India ranks second only to China in silk production. Sericulture is an industrial sector and provides employment to 7.56 million socially disadvantaged people.
2. The state of Karnataka produces an average of 8,200 metric tons of silk every year. It is the leading state in India producing 1/3rd of the country's total output. West Bengal, Jammu and Kashmir, Bihar, Jharkhand, Chhattisgarh, Uttar Pradesh, Punjab, Assam and Tamil Nadu are significant silk producers. India exports silk fabrics, silk shawls, silk dresses and silk sarees. Exports to the United States, United Nations, Saudi Arabia, Kuwait and Singapore.

5) Sugar factory

1. Sugar is produced from sugar-containing crops like sugarcane, sugar-beets. Sugar in India is mostly extracted from sugarcane. It is the second largest agro-based industry after cotton weaving. Brazil is second in world sugarcane production India ranks second. It provides employment opportunities to 2.86 lakh workers. Sugarcane is easy to lose weight. These industrial roads are located close to sugarcane growing areas as they are heavy for traffic.

2. Uttar Pradesh tops the total sugar production of the country with 50 percent. Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, Bihar, Punjab, Gujarat, Haryana and Madhya Pradesh account for 90 percent of the sugar mills and producing states.

6) Forest based industries

Forests provide raw materials for paper industries, skis, sports goods, plywood etc.

7) Paper mills

1. Paper industry has emerged as a decentralized and unique industry in India. Paper sheets, paperboards, laminated sheets, paper bags, stationery, texts and printed paper products such as books, magazines and journals are produced by paper mills.
2. Softwoods are used as raw materials for the production of high quality printing papers and newsprint. Paper usage is a tool for measuring the overall well-being of society for educational and non-academic use.
3. The first Royal Bengal Paper Mill in India was established in 1867 at Ballyganj near Kolkata. Next paper mills were established in Lucknow in 1879, in 1882 in Phettagarh, in 1887 in Poona, in 1892 in Raniganj, in 1892 in Kankinara and in 1918 in Naigam. Wood pulp, bamboo, salai and sawai grasses, used paper, sugarcane bagasse etc. are the raw materials required for paper industry. West Bengal is a major paper producing state in India. Madhya Pradesh, Orissa, Tamil Nadu etc. are significant paper producing states.

8) Mineral industries

1. These industries use both metallic and non-metallic raw materials. Iron and steel industry is an important mineral industry.
2. Iron and steel industries
3. Iron and steel industries are known as base metal industries as their products provide raw material to other industries. Industries that manufacture engineering, heavy machinery, machine tools, vehicles, locomotives and railway equipment use iron as raw material. Industrial development of a country is determined by the amount of iron and steel production.
4. Tata Iron and Steel Factory was the first modern factory started in Jamshedpur in 1907 called "Saxi". Jharkhand, West Bengal, Odisha are more common in the states. This is due to the proximity to each other of the Jharia Raniganj, Bokaro and Karanpura coalfields and the Mayurbhanj, Ionjar and Purena iron ore mines. Mineral deposits such as dolomite, manganese and silicon required for this industry are available here in sufficient quantity.

9) Automotive industries

1. India is progressing in automobile manufacturing to meet the demand of the domestic automobile market and also to play a major role in the global automobile market. It is one of the fastest growing industries in India.
2. India's first automobile industry was started in 1947 at Kurla near Mumbai under the name of Premier Automobile Company. Following this in 1948 Hindustan Motor Company was started at Uttarpara near Kolkata. Currently, India is the seventh largest automobile manufacturing country. The company manufactures two wheelers, recreational vehicles, jeeps, three wheelers and commercial vehicles. Mumbai, Chennai, Jamshedpur, Jabalpur, Kolkata, Poona, New Delhi, Kanpur, Bengaluru, Satara, Lucknow and Mysore are major manufacturing hubs.
3. Companies like Tata Motors, Maruti Suzuki, Mahindra & Mahindra Hindustan Motors are Indian companies that manufacture large passenger cars. Multinational companies established in India such as Mercedes, Benz, Fiat General Motors, Toyota and recently entered India, BMW. Audi, Volkswagen and

Volvo have made Indian automobile manufacturing even more special.

4. Indian companies that manufacture commercial vehicles are Tata Motors, Ashok Leyland, Isher Motors, Mahindra & Mahindra and Ford Motors. Multinational companies such as MAN, ITEC, Mercedes-Benz, Scania and Hyundai also manufacture commercial vehicles. Indian companies such as Hero, Bajaj Auto and TVS are leading manufacturers of two-wheelers.
5. The automotive industry in India can be seen in four clusters. They are North E Delhi Gurgaon and Manesar in India, Pona, Nashik, Halol and Olarangabad in West India, Chennai, Bengaluru and Hosur in South India, Jamshedpur and Kolkata in East India.

10) Electrical and Electronics Industries:

1. Heavy electrical industries manufacture equipment for power generation, transformers, steam boilers, conductors for hydroelectric power plants, boilers for thermal power plants, generators, transformers and switchgears. One of the most important heavy machinery manufacturers in India is Bharat Heavy Machinery (BHEL). The company has branches at Haridwar, Bhopal Hyderabad, Jammu, Bengaluru, Jhansi and Tiruchirappalli.
2. The company manufactures television sets, radio sets, telephone sets, cellular telegraphs, computers and various equipments required for the fields of postal, railway safety, meteorology etc.
3. Bengaluru is the largest electronics manufacturing city in India. Hence Bengaluru is known as the "Electronic Capital of India". Other major electronics manufacturing centers are Hyderabad, New Delhi, Mumbai, Chennai, Kolkata, Kanpur, Poona, Lucknow, Jaipur and Coimbatore.

11) Software industry

1. India is home to some of the best software companies in the world. Indian software industries are world renowned for providing IT and business solutions. Indian software industry has been a huge success in Indian economic development.
2. Tata Consultancy Services is India's first software industry. It was started in 1970. Along with this, L&T, Infotech, J-Plex, Asigner, Cognizant Galaxy Solutions, India Pvt Ltd JTC, Infotech etc are important software companies in India. Currently, there are more than 500 software industries across India. These companies provide software export services to around 95 countries of the world.
3. Chennai, Coimbatore, Thiruvananthapuram, Bengaluru, Mysuru, Hyderabad, Visakhapatnam, Mumbai, Poona, Indore, Gandhinagar, Jaipur, Noida, Mohali and Srinagar are the major software hubs in India.

5. இந்தியாவின் புதுப்பிக்கத்தக்க ளிசக்தி சாத்தியங்களைப் பற்றி விவாதிக்கவும்.

Discuss Renewable Energy potentials of India.

The world's third largest consumer of electricity. The country has the third largest renewable energy production capacity. About 40% of India's total electricity needs are derived from renewable energy.

1) Hydropower

1. Hydropower is derived from flowing water. This electricity is considered as clean and economically important electrical energy. Hydropower meets 7 percent of global electricity demand. As it is derived from renewable resources, it has low production cost as compared to other electricity sources. It is capable of increasing or decreasing production instantly as per demand.
2. India is a very good country with very high potential for hydropower generation.
3. It is unevenly distributed in India. Assam, Arunachal Pradesh, Manipur, Nagaland and Tripura states account for 30.4 percent of the country's total hydroelectric potential, eastward-flowing rivers of the peninsula account for 20.9 percent, westward-flowing rivers originating in the Western Ghats (south of Tapati) account for 10.5 percent, and the Ganga basin accounts for 11.7 percent. The Indus

drainage area has 16 percent potential and Central Indian rivers have 10.5 percent hydropower potential.

2) Solar Energy/Shakti

1. Solar energy is the conversion of sunlight into electricity by direct, concentrated or concentrated solar energy. In the concentrating method, sunlight from a large area is concentrated into a small beam by means of bows or mirrors onto a cell. Transducers convert sunlight into electricity through the photoelectric effect.
2. Power distribution, marketing, supply of various types of thermal energy required by homes, institutions and industries are the major multi-purposes of solar thermal power project. It is being implemented by the Ministry of Non-Conventional Energy Resources (MNES). Solar energy is used for water boilers, refrigerators, dryers, street lights, cooking, irrigation, power generation, compressors, beauty salons, etc. States like Andhra Pradesh, Gujarat, Rajasthan, Maharashtra and Madhya Pradesh generate large amount of electricity from solar.

3) Wind power:

1. Energy generated by wind or thrust is converted into electrical energy with the help of wind turbines and wind power is obtained. It is a cheap and renewable energy resource. Wind power is used to raise water and propel ships. Wind power is a resource that is highly available, renewable, ubiquitous, clean, and does not emit global warming gases. Less space is enough to install a wind turbine.
2. Wind power generation in India started to develop in 1986 with 55 kW wind turbines installed at coastal Oga in Gujarat, Ratnagiri in coastal Maharashtra and Thoothukudi in coastal Tamil Nadu. Its production capacity has increased significantly over the past few years. India has the fourth highest wind capacity in the world, and offshore wind energy policy has been formulated.

4) Bioenergy:

Bioenergy is derived from organic wastes such as animal waste, cooking waste, air waste, agricultural waste and municipal waste. It is a clean and cheap energy resource. India has 18 GW bioenergy generation capacity. Currently 32% of the total energy consumption in India is derived from biomass. Bioenergy is mostly used for domestic purposes.

5) Recitation and wave power:

1. Electricity is derived from two resources namely ocean currents and ocean waves. India is estimated to have 8000 - 9000 MW of wind power generation potential. With 7000 MW of wind power generation capacity, the Gulf of Cambay is an ideal location for wind power generation. Next to these are the Gulf of Kutch region (1000 MW) and the Sundarbans region (100 MW) as other regions with significant potential. At present Odashakti with a generating capacity of 900 MW is proposed for installation in the Gulf of Kutch region.
2. The offshore power potential of India is estimated at 4000 OMW. A wave power plant with a generating capacity of 150 KW has been installed at Villincham near Thiruvananthapuram. Another similar plant has been set up near the Andaman and Nicobar Islands.
3. Also by 2050 around (500 GW) of electricity has been formulated to be sourced from renewable energy.

6. **ஊழல் என்றால் என்ன? அதற்கான காரணங்கள் மற்றும் ஒழிப்பு நடவடிக்கைகள் குறித்து விவரிக்க.**

What is corruption? Explain about its causes and remedial measures.

Connivance, cheating, manipulation, extortion, favoritism are forms of corruption.

Causes of corruption:

1) Lack of regular regulations
2) Inaccessibility of government service to people in administration
3) Gap between people, civil servant
4) Delay in service delivery
5) Lack of transparency
6) Dishonesty
7) High tax rate
8) Greed
9) Indifference to public welfare
10) Socio-psychological acceptance of corruption
11) Lack of awareness
12) Defects in Anti-Corruption Act
13) Inflation
14) Red tape system
15) Apathy of the citizen
16) Administrative political center
17) Government employees are paid less compared to private sector.
18) Improper law enforcement.

Anti-Corruption Action:

1) Prevention of Corruption Act - 1988
2) Santhanam Group – 1963
3) Central Intelligence Agency – 1963
4) Central Corruption Vigilance Commission – 1964
5) Lokpal – 2014
6) Lok Ayukta
7) Central Information Commission - 2005
8) Right to Information Act - 2005
9) Demonetisation – November 8, 2016
10) Indian Penal Code – 1860
11) Prevention of Money Laundering Act - 2002

7. **தகவல் அறியும் உரிமைச் சட்டம், 2005.–விளக்குக.**

Elucidate -Right to Information act, 2005.

The Right to Information Act - 2005 came into force from October 2005. This comes under Article 19 of the Constitution of Fundamental Rights. Central and State Information Commissions will be set up under the Right to Information Act.

Purpose:

1) Granting to the people, as a fundamental right, the right to access information from government officials in all parts of the country
2) To bring transparency in the functioning of government officials
3) To check corruption, appointment of Public Information Officer (PIO) in government offices.
4) Ensuring that government departments and institutions are accountable to the people
5) A practical format is given to provide information to the people.

6) Repeal of Government Documents Secrecy Act 1923 which prohibits disclosure of information to the public

Jurisdiction:

All kinds of offices created by the Central, State and Union Territory Governments either on their own or directly or through financial assistance are covered under this Act.

The information is:

Includes records, documents, office memos, email, comments, suggestions, information - data.

Registers are:

1) All kinds of documents, manuscripts, files
2) Microscroll, photocopy, copies of registered document
3) Documents produced by devices such as computers

Right to Information means:

1) Right to inspect works, documents, records
2) Right to receive notes, summaries etc
3) Right to take samples
4) Do not deny information to Parliament and Legislature.
5) Do not deny information to law making bodies at any time.
6) Applicant should be informed within 30 days. Information related to life and personal freedom should be given within 48 hours.

Secrets to be protected:

Sovereignty, integrity, security, economic (m) scientific interests of the country, foreign affairs information etc. are to be protected.

Exception:

Intelligence

Private companies are not covered under the Act

8. **இந்தியாவின் மத்திய தலைமை தணிக்கையாளர் அதிகாரங்கள், அமைப்பு முறை மற்றும் செயல்பாடுகளை விளக்குக.**

Illustrate power, structure and functions of Comptroller and Auditor General of India.

CAG of India is the apex authority responsible for external and internal audits of expenditure of national and state governments and is a constitutional office under Article 148 of the Constitution.

Powers of the Auditor General of India

1. The Comptroller and Auditor General is appointed by the President of India and can be removed from office only in the manner and on the basis of removal of a Judge of the Supreme Court.
2. The person appointed to this office shall take the oath of office before the President or any other person designated by the office of the President.
3. The pay, conditions of service, leave, pension and age of retirement are determined by the Parliament of India and are specified in the Second Schedule.
2. The CAG shall not be eligible for any post in the Government of India or any State Government after the expiry of their tenure.
3. The powers and functions of the CAG are subject to the provisions of the Constitution of India and any Acts of Parliament and the conditions of service of the Indian Audit and Accounts Department. Rules governing these shall be prescribed by the President in consultation with the incumbent.
4. The expenses of the administration of this office, including all allowances, salaries and pensions, shall be charged to the Consolidated Fund of India.
5. The incumbent shall be appointed for a period of 6 years or till he attains the age of 65 years whichever

is earlier. Not bound by any ministry.

Functions of CAG of India:

1. To audit the accounts relating to all expenditure drawn from the Consolidated Fund of India, the Consolidated Fund of each State and the Consolidated Fund of each Union Territory having a Legislative Assembly.
2. Audit of all expenditure from the Contingent Fund of India and Public Accounts of India and from the Contingent Fund and Public Accounts of the States.
3. Audit of all trading, production, profit and loss accounts, balance sheets and subsidiary accounts of any department of the Central Government and State Governments.
4. Audit of the receipts and expenditure of the Government of India and of each State, and the rules and procedures relating thereto are designed to secure an effective check on the assessment, collection and proper allocation of revenue.
5. Auditing receipts and expenditure of: All bodies and authorities substantially financed from Central or State revenue; Government Institutions; and other organizations and bodies when required by relevant laws.
6. Audit of all transactions of Central and State Governments relating to credit, sinking fund, deposits, advances, suspense accounts and remittance business. He audits the receipts, stock accounts and others with the approval of the President or when required by the President.
7. To audit the accounts of any other authority when requested by the President or the Governor. For example, audit of local bodies.
6. To advise the President on the recommendation of the form in which the accounts of the Union and the States shall be kept (Article 150).
7. Submission of audit reports on the accounts of the Central Government to the President, who shall lay them before both Houses of Parliament (Article 151).
8. Submission of audit reports relating to the accounts of the State Government to the Governor, who shall lay them before the State Legislature (Section 151).
9. He is a consultant to Parliament and PAC (to the Public Accounts Committee of the Legislature).
10. Examines the accounts of the Local Bodies on the request of the President and the Governor.
11. He submits an annual report on the accounts to the President and the Governor of the State.