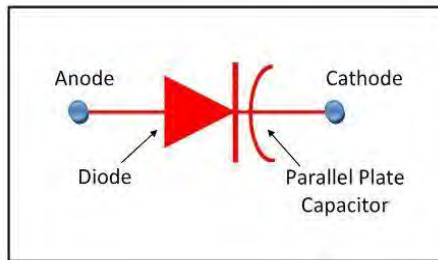


ELECTRICAL ENGINEERING

Questions Shift-I (Memory Based)

1. Which is the Varactor diode symbol ?

Sol.



2. What is the full form of MCCB ?

Sol. Molded Case Circuit Breaker

3. What is the Highest rating fuse ?

Sol. HRC Fuse

4. What is the dimension of Rod electrode for earthing ?

5. Which meter is used for measurement of Electrical resistance ?

Sol. Ohmmeter

6. In which law the summation of current is zero ?

Sol. KCL it **states that** "The algebraic sum of all currents entering and exiting a node must equal zero

7. The direction of induced EMF is given by which rule ?

Sol. Fleming Right hand rule

8. The units used in circuits to denote resistance is ?

Sol. Either ohms or watts

9. DC series motor is used in which application ?

Sol. It is used for Electric Traction

10. Which material is used for the making of brush in a DC machine ?

Sol. Carbon or Graphite are used for making of Brush in DC machine

11. Which of the following is used for Power factor Improvement ?

Sol. Synchronous Phase modifier is used for Power factor Improvement

12. What is the unit of H ?

Sol. Amp-Turn per Wb

13. What is the value of 1 lux ?

Sol. $1 \text{ lux} = 1 \text{ Lumen/m}^2$

14. If the number of poles is 6 and the supply frequency is 60Hz, the synchronous speed in rpm will be ?

Sol. $N_s = 120f/p = 120 \cdot 60/6 = 1200 \text{ rpm}$

15. Which type of motor is a reluctance motor ?

Sol. Single phase synchronous Reluctance Motor

16. Which motor operates on both AC-DC supply ?

Sol. Regardless of AC or DC supply, universal motor works on the same principle that DC series motor works.

17. Zero pf leading Armature reaction nature in alternator leads to ?

Sol. Magnetizing nature of Armature reaction at zero power factor lead.

18. What is the use of Economiser ?

Sol. The heat available in the exhaust flue gases can be economically recovered using an air Economiser.

19. Effect of capacitance in single phase induction motors during starting and running ?

A. High, High

B. Low, low

C. High, low

D. Low, High

Ans. C

20. What is the SI Unit of mass ?

Sol. SI unit of mass is the kilogram (kg)

21. Polystyrene is comes under :

A. Conductor

B. Insulator

C. Semiconductor

D. None of the above

Sol. Polystyrene and plastic foam are both used as insulators as they have small air bubbles trapped inside them. This makes them very good insulators because heat energy can't flow through them.

22. Which of the following show the correct relation between resonating frequency, bandwidth and Q factor ?

Sol. The **Q-factor or the quality factor of the operating resonance frequency ω** is defined as the ratio of the resonance frequency to the bandwidth (BW).

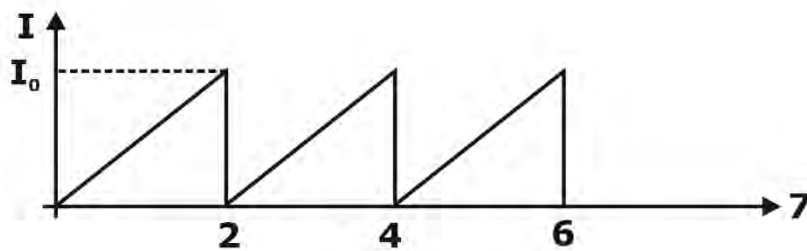
23. Synchronous Impedance method of V.R is also known as

Sol. Synchronous impedance method is higher than that obtained by actual loading. Hence, this method is also called the Pessimistic method.

24. How to increase the speed of the disc in the energy meter?

Sol. By changing the position of the brake magnet or diverting some of the flux there form, the speed of the rotating disc can be controlled.

25. Find the RMS value of below figure



Sol. Root-mean-square of triangular wave (I_{rms}) = $I/\sqrt{3}$

26. NPN and PNP are :

- A. Transistor
- B. Semiconductor
- C. Thyristor
- D. none of the above

Ans. A

Sol. NPN and PNP are the transistors

27. What is the expression for capacitance in transmission line ?

Sol. $C = 2\log(D/r) = 2\log(D/r)$

28. A 2amp current flows through series connection of inductance $L_1 = 3H$ and $L_2 = 6H$. If the coils are additively coupled and the value of M is $2H$, then the stored energy will be ?

Sol. Energy stored in inductor :

$$w = \frac{1}{2}Li^2 \dots \dots \dots (i)$$

where L_{eq} is the equivalent inductor.

$$L_{eq} = L_1 + L_2 + 2M \text{ (in case of additive polarity)}$$

$$L_{eq} = 3 + 6 + 2 \times 2 = 13H$$

$$\text{Energy} = 0.5 \times 13 \times 4 = 26J$$

29. What is the secondary transmission voltage in the Power System?

- A. 132 kV
- B. 66 kV
- C. 33 kV

Ans. C

Sol. Secondary transmission voltage in the Power System is 33KV.

30. Impedance angle for a R-L circuit lies between ?

Sol. Resistance provides 0degree while Inductance provides 90 degree lag. Hence for R-I Circuit the impedance angle will be in between 0 to 90.

31. Which motor is used in cranes and hoist ?

Sol. DC Series motor is used in Crane and Hoist.

32. What is the dimension of Copper Strip?

Sol. According to IE standards it should be 25 mm x 4mm

33. Thermocouple measures which values?

- A. Compound values
- B. Average values
- C. RMS values

Ans. C

Sol. Thermocouple measures the RMS value of the current.

34. Which is not measured by CRO?

- A. Frequency
- B. Voltage
- C. Power
- D. Phase

Ans. C

Sol. Power is not possible to measure using CRO. Power can be measured using wattmeter.

35. Which type of lightning scheme is used in malls?

- A. Direct Lightning
- B. Indirect Lightning

Ans. B

Sol. Indirect lightning is used in malls, cinema halls and hotels etc.

GENERAL AWARENESS

1. Which is the primary source of Vitamin C ?

Sol. Citrus fruits such as orange, kiwi, lemon, guava, grapefruit, and vegetables such as broccoli, cauliflower, Brussel sprouts and capsicums are rich, natural sources of vitamin C. Other vitamin C-rich fruits include papaya, cantaloupe and strawberries.

2. What is the atomic mass of Nitric acid ?

Sol. 63.01 g/mol

3. What is the atomic mass of Chlorine ?

Sol. 35.453 u

4. Who won the Man Booker prize 2020 ?

Sol. Shuggie Bain

5. Who is the Longest serving Congress president ?

Sol. Sonia Gandhi is the longest serving president of the Congress party, having held the office for nineteen years from 1998 to 2017.

6. What was the year of the Quit India Movement ?

Sol. In August 1942, Gandhiji started the 'Quit India Movement' and decided to launch a mass civil disobedience movement 'Do or Die' call to force the British to leave India.

7. How many sports were added in youth khelo India game 2021 ?

Sol. 4

8. Pantothenic acid is the name of which vitamin ?

Sol. Vitamin B5, also called pantothenic acid, is one of 8 B vitamins. All B vitamins help the body convert food (carbohydrates) into fuel (glucose), which the body uses to produce energy. These B vitamins, often referred to as B complex vitamins, also help the body use fats and protein.

9. Which is the smallest bone in the human body ?

Sol. The stapes is the smallest bone in the human body.

10. Article 14 of Indian constitution talks about ?

Sol. Article 14 of the Constitution of India provides for equality before the law or equal protection of the laws within the territory of India. "The State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India."

11. What is the article for Budget in Indian Constitution ?

Sol. According to Article 112 of the Indian Constitution, the Union Budget of a year, also referred to as the annual financial statement, is a statement of the estimated receipts and expenditure of the government for that particular year.

12. Who started Sahayak Sandhi (Subsidiary alliance) ?

Sol. governor Joseph François Dupleix

14. Total Number of laureates in nobel medicine 2020 ?

Sol. 3

13. Which of the following is in Ankara land ?

- A. Europe
- B. Australia
- C. Africa
- D. India

Sol. Europe

14. Which constitutional Article is for Equality before law?

- A. Article 14
- B. Article 17

Ans. A

15. Night Blindness is caused due to deficiency of which Vitamin?

Sol. Vitamin A deficiency can lead to night blindness

16. Maria Sharapova is related to which sports ??

Sol. Tennis

17. Name the footballer who died in December 2020?

Sol. Diego Maradona

18. Swine Flu is spread from?

- A. Bacteria
- B. Virus
- C. Fungi

Ans. B

Sol. The swine influenza virus can be transmitted to humans via contact with infected pigs or environments contaminated with swine influenza viruses

19. Which of the following is not the tributary of Ganga River?

- A. Brahmaputra
- B. Alaknanda
- C. Gandak

Ans. A

Sol. Brahmaputra

20. Jute is known as?

- A. Golden Fibre
- B. Silver Fibre

Ans. A

Sol. Jute is also called the "golden fiber" for its color and high cash value.

21. Who invented www ?

Sol. Sir Tim Berners-Lee invented the World Wide Web in 1989.

22. What is the capital of Nigeria?

Sol. Abuja is the capital of Nigeria

23. Which of the following was not part of Gondwana ?

- A. Australia
- B. India

Sol. Gondwana - Antarctica, South America, Africa, Madagascar, India, Arabia, Australia-New Guinea and New Zealand.