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DEPARTMENT OF ELECTRICAL ENGINEERING

THIRD YEAR (TY)

SCHEME: I   **SEMESTER: VI**

NAME OF SUBJECT: EMERGING TRENDS IN ELECTRICAL ENGINEERING

SUBJECT CODE: 22628

UNIT WISE MULTIPLE CHOICE QUESTIONS BANK

Question Bank for Multiple Choice Questions

Program: Diploma in Electrical engineering	Program Code:- EE
Scheme:- I	Semester:- VI
Course:- Emerging Trends in Electrical Engineering	Course Code:- 22628

01.Digitization Beyond Automation	Marks:- 12

Content Of Chapter:-
1.1 Industrial Revolutions: Version 1.00, 2.00, 3.00 The Driving Power For These Revolutions.
1.2 Components Of Industrial Revolutions: Cps, Iot, Cloud Computing & Cloud Manufacturing.
1.3 Iot Principles & Features.
1.4 Iot Application Areas In Electrical System: Building Automation, SCADA, Smart Metering, Illumination System.
1.5 Iot Initiatives In Power Distribution System: Mobile App, Geo Coordinates Of The Network As Well As Consumer Premises, Various Digital Service Platforms For Consumer.

1) How many numbers of the element in the open IoT architecture?
a. Four elements
b. Five elements
c. Six elements
d. Seven elements
Answer: (d) Seven elements

2) Which of the following is the way in which an IoT device is associated with data?
a. Internet
b. Cloud
c. Automata
d. Network
Answer: (b) Cloud

3) Which of the following IoT networks has a very short range?
a. Short Network
b. LPWAN
c. SigFox
d. Short-range Wireless Network
Answer: (d) Short Range Wireless Network

4) What s the full form of the LPWAN?
a. Low Protocol Wide Area Network
b. Low Power Wide Area Network
c. Long Protocol Wide Area Network
d. Long Power Wide Area Network
Answer: (b) Low Power Wide Area Network

5) An IoT network is a collection of _____ devices.
a. Signal
b. Machine to Machine
c. Interconnected
d. Network to Network
Answer: (c) Interconnected

6) Which one of the following is not an IoT device?
a. Amazon echo voice controller
b. Google Home
c. Nest Smoke Alarm
d. None of these
Answer: (d) None of the these

7) What is the main purpose of WoT (Web of Things) in the IoT?
a. Improve the usability and interoperability
b. Reduce the security
c. Complex the development
d. Increase the cost
Answer: (a) Improve the usability and interoperability

8) What is the Arduino UNO?
a. Software
b. Hardware device
c. Network
d. Protocol
Answer: (b) Hardware device

9) _____ allows the user to control electronic components.
a. Android API
b. RETful API
c. MQTT API
d. CoAP API
Answer: (b) RETful API

10) Which of the following is not an application of IoT?
a. Wearables
b. Smart Grid
c. Arduino
d. Smart City
Answer: (c) Arduino

11) Which one of the following protocols is lightweight?
a. IP
b. HTTP
c. MQTT
d. CoAP
Answer: (c) MQTT

12) What is the role of Big Data in IoT's Smart Grid architecture?
a. Filter the data
b. Locked the data
c. Store data
d. None of the these
Answer: (c) Store data

13) What is the real example of a smart grid device in IoT?
a. Mobile phone
b. Television
c. Smart Speaker
d. Smart Meters
Answer: (d) Smart Meters

14) What is the full form of the MQTT?
a. Multi-Queue Telemetry Things
b. Multiple Queue Telemetry Things
c. Message Queue Telemetry Things
d. Message Queue Telemetry Transport
Answer: (d) Message Queue Telemetry Transport

15) What is the full form of ICT?
a. Inter Connect Technology
b. Internet Connection Topology
c. Information and Communication Technology
d. Infer Communication Topology
Answer: (c) Information and Communication Technology

16) Which of the following frequencies is correct for the Galileo gen 2 board?
a. 250 MHz
b. 400 MHz
c. 450 MHz
d. 300 MHz
Answer: (b) 400 MHz

17) What is the full form of IANA?
a. Inter-Assessment-Number-Access
b. Internet-Association-Numbers-Authority
c. International-Aid-for-Network-Authority
d. Internet-Assigned-Numbers-Authority
e. Hide Answer Workspace
Answer: (d) Internet-Assigned-Numbers-Authority

18) What is the standard port number of secure MQTT?
a. 1883
b. 8000
c. 8883
d. 8888
Answer: (c) 8883

19) Which of the following layers provides end-to-end communication in IoT?
a) Logical layer
b) Data link layer
c) Transport layer
d) Session layer
Answer: (c) Transport layer

20) Which of the following devices is used to measure the gases or liquid?
a) Optical Sensor
b) Gas Sensor
c) Smoke Sensor
d) Pressure sensor
Answer: (d) Pressure sensor

21) Which interface does the fingerprint sensor use?
a) UART interface
b) CoAP interface
c) SPI interface
d) I2P interface
Answer: (a) UART interface

22) Which of the following protocols is used by USART?
a) RS32
b) RS232C
c) 4RS85
d) All of the these
Answer: (b) RS232C

23) What is the full form of HDLC?
a. Higher Data Level Communication
b. Higher Data Link Communication
c. High-level Data Link Control
d. High Data Level Control
Answer: (c) High-level Data Link Control

24) Which of the following "bit" defines the address bit in the control register?
a) ML
b) MM
c) RXWake
d) None of the these
Answer: (b) MM

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02. SMART GRID	Marks:- 12

Content Of Chapter:-
2.1 Smart Grid: Need and Evolution Layout and Its Components, Advantages, Barrier, Smart Grid Project in India.
2.2 Micro Grid, Distributed Energy Resources: Needed Formation Of Micro Grid, Distributed Generation System, Distributed Generation Technologies.
2.3 Smart Substation: Need, Layout And Components, Typical Specification Of Existing Substation.

1. Which of the following smart grid components is responsible for monitoring things such as electric current and voltage, among other things?
a. IT operations
b. Control systems & sensors
c. Analytic software
d. Communications
ANSWER: d. Communications

2. Which of the following best describes the smart grid's analytic software's responsibilities?
a. It monitors a smart grid's current voltage.
b. It is tasked with preventing malware from infecting the smart grid.
c. It analyzes the electricity to ensure it is coming from renewable resources.
d. It analyzes the power grid's processes and can automate**.**
ANSWER -c) It analyzes the electricity to ensure it is coming from renewable resources.

4. Alternate Mark Inversion (AMI) is also known as
a) Pseudo ternary coding
b) Manchester coding
c) Polar NRZ format
d) None of the above
ANSWER: a) Pseudo ternary coding

5. In Alternate Mark Inversion (AMI)
a) 0 is encoded as positive pulse and 1 is encoded as negative pulse
b) 0 is encoded as no pulse and 1 is encoded as negative pulse
c) 0 is encoded as negative pulse and 1 is encoded as positive pulse
d) 0 is encoded as no pulse and 1 is encoded as positive or negative pulse
ANSWER: b) 0 is encoded as no pulse and 1 is encoded as negative pulse

6. Advantages of using AMI
a) Needs least power as due to opposite polarity
b) prevents build-up of DC
c) may be used for longer distance
d) all of the above
ANSWER: d) all of the above

7. Which of the following AMI components is the collection of networks in which the entire infrastructure is built on?

a. The collector
b. Smart meters
c. The communication channel
d. Head-end system

ANSWER: The communication channel

8. In Alternate Mark Inversion (AMI)

a) 0 is encoded as positive pulse and 1 is encoded as negative pulse
b) 0 is encoded as no pulse and 1 is encoded as negative pulse
c) 0 is encoded as negative pulse and 1 is encoded as positive pulse
d) 0 is encoded as no pulse and 1 is encoded as positive or negative pulse

ANSWER: d) 0 is encoded as no pulse and 1 is encoded as positive or negative pulse

9. Advantages of using AMI

a) Needs least power as due to opposite polarity
b) prevents build-up of DC
c) may be used for longer distance
d) all of the abovE

ANSWER: d) all of the above

10. The interference caused by the adjacent pulses in digital transmission is called

a) Inter symbol interference
b) White noise
c) Image frequency interference
d) Transit time noise

ANSWER: a) Inter symbol interference

11. Eye pattern

a) Is used to study ISI
b) May be seen on CRO
c) Resembles the shape of human eye
d) All of the above

ANSWER: d) All of the above

12. The time interval over which the received signal may be sampled without error may be explained by

a) Width of eye opening of eye pattern
b) Rate of closure of eye of eye pattern
c) Height of the eye opening of eye pattern
d) All of the above

ANSWER: a) Width of eye opening of eye pattern

13. For a noise to be white Gaussian noise, the optimum filter is known as

a) Low pass filter
b) Base band filter
c) Matched filter
d) Bessel filter

ANSWER: c) Matched filter

14. Matched filters are used
a) For maximizing signal to noise ratio
b) For signal detection
c) In radar
d) All of the above
ANSWER: d) All of the above

15. The number of bits of data transmitted per second is called
a) Data signaling rate
b) Modulation rate
c) Coding
d) None of the above
ANSWER: a) Data signaling rate

16. Pulse shaping is done
a) to control Inter Symbol Interference
b) by limiting the bandwidth of transmission
c) after line coding and modulation of signl
d) all of the above
ANSWER: d) all of the above

17. The criterion used for pulse shaping to avoid ISI is
a) Nyquist criterion
b) Quantization
c) Sample and hold
d) PLL
ANSWER: a) Nyquist criterion

18. The filter used for pulse shaping is
a) Raised - cosine filter
b) Sinc shaped filter
c) Gaussian filter
d) All of the above
ANSWER: d) All of the above

19. Roll - off factor is defined as
a) The bandwidth occupied beyond the Nyquist Bandwidth of the filter
b) The performance of the filter or device
c) Aliasing effect
d) None of the above
ANSWER: a) The bandwidth occupied beyond the Nyquist Bandwidth of the filter

20. Which of the following AMI components is the collection of networks in which the entire infrastructure is built on?
a. The collector
b. Smart meters
c. The communication channel
d. Head-end system
ANSWER: b. Smart meters

21. Which of the following best describes the collector's purpose in an AMI?
a. It is the main hub for the entire infrastructure.
b. It is installed around a smart meter so that only authorized technicians with a key can access the device.
c. It prevents unauthorized communication between smart meters.
d. It is the communication node between the head-end system an
ANSWER: b. It is installed around a smart meter so that only authorized technicians with a key can access the device.

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03. Smart City	Marks:-16

Content Of Chapter:-
3.1 Smart city: features,components,objective and challenges of smart cities in INDIA.
3.2 E-car- Role of electric vehicles in energy transition,basic of electric car,types of electric car,working principle charging cars,charging station,fuel cell for e-car, types,features,limitations.
3.3 Smart Home- features and components,illumination and smart appliances control principles.

1) Which city tops list of 27 new smart cities announced by Ministry of Urban Development.a.
Amritsar
b. Ajmer
c. Madurai
d. Varanasi
ANSWER: a. Amritsar

2) Which of the following States/UTs do not have even one city in the two rounds of the Smart City Challenge?
1) Uttarakhand
2) Lakshadweep
3) Puducherry
a. 2, 3
b. 1, 2
c. 1, 3
d. All of the above
ANSWER: All of the above

3) In the round 2 of Smart City Mission which city tops the list?
a. Amritsar
b. Ujjain
c. Rourkela
d. Nagpur
ANSWER: Amritsar

4) Which of the following are among the newly added cities in the Smart Cities competition?
1) Aizawl
2) Lucknow
3) Chandigarh
a. 1, 3
b. 1, 2
c. 2, 3
d. All of the above
ANSWER: 2, 3

5) Which of the following statements is/are correct about Smart Cities Mission?
1. 500 cities and towns, with a population of one lakh and above each accounts for 73% of urban population is target of smart cities.
2. It has a a Central Outlay of Rs.48, 000 cr for the next five years.
a. Only 1
b. Only 2
c. Both
d. None
ANSWER: Only 2

6) The centre announced the names of cities & towns to be developed as smart cities on 27th Aug'15. Which state gets the maximum number of aspirant smart cities?
a. Maharashtra
b. Tamil Nadu
c. Uttar Pradesh
d. Madhya Pradesh
ANSWER: Uttar Pradesh

7) How many mega schemes for revamping urban India will be launched by the PM Narendra Modi on 25th June'15?
a. 1
b. 2
c. 3
d. 4
ANSWER: 3

8) Whose offer has been approved by the Ministry of Urban Development for cooperation in conducting the 'Cities Challenge' competition to select the cities for financing under the Smart Cities Mission of the Government?
a. Bloomberg Philanthropies
b. BBC
c. Future Group
d. None of these
ANSWER: Bloomberg Philanthropies

9) Name the country that has proposed to assist in developing Delhi as the first global and smart city in India under the framework of the draft MoU presented on 27th Apr'15?
a. Spain
b. France
c. China
d. Sri Lanka
ANSWER: Spain

10) Which of the following city got first Smart City nomination?
a. Hubballi-Dharwad
b. Surat
c. Pune
d. Puducherry
ANSWER: Puducherry

11) Consider the following statements

1. A 'smart city' is an urban region that is highly advanced in terms of overall infrastructure, sustainable real estate, communications and market viability.
2. It will provide real time information on parking, traffic congestion and public transport
3. Smart cities will be energy efficient and will have low carbon foot print

Which of the above statements is/are correct?

a. 1,2
b. 2,3
c. 1,3
d. All
ANSWER: All

12. In order to surf the Internet, all computers on a home network require their own static Internet IP address.
 a. True
 b. False
ANSWER: a.True

13. Network address translation (NAT) is used to:
 a. translate English into a different language.
 b. allow a home network to share a single Internet connection.
 c. protect against viruses.
 d. None of the above
ANSWER:a. translate English into a different language

14. A network device that forwards traffic between network segments is called a:
a.router.
b. cable modem.
c. hub.
d. VPN.
ANSWER: a.router.

15. Which of the following is a wireless network standard?
 a. 802.11a
 b. 802.11b
 c. 802.11g
 d. All of the above
ANSWER: d. All of the above

16. Ethernet switches are considered faster than Ethernet HUBs.
a. True
 b. False
ANSWER: **a. True**

17. A network device that will distribute a single Internet connection to all computers on a home network is called a:
 a. bridge.
 b. cable modem.
 c. router.
 d. switch.
ANSWER: b. cable modem.

18. MAC address filtering can be used to increase security on a wireless network.
  a. True
  b. False
ANSWER: a. True

19. Hubs can be used to add ports to a home network.
  a. True
  b. False
ANSWER: a. True

20. What is the maximum length for an Ethernet cable?
  a. 50 feet
  b. 100 feet
  c. 300 feet
  d. 1,000 feet
ANSWER: b. 100 feet

21. Crossover cables are used to directly connect one computer to another computer.
  a. True
  b. False
ANSWER: a. True

22.   What is the Windows XP command to determine the IP address of a computer?
 a. defrag
 b. dir
 c. ipconfig
 d. winipcfg
ANSWER: c. ipconfig

23. Home data networks can be either hard-wired or wireless.
  a. True
  b. False
ANSWER: a. True

24. Which of the following is an example of a video connection?
 a. Component
 b. Composite
 c. DVI-HDTV
 d. S-Video
ANSWER: d. S-Video

25. A video cable that consists of three cables with RCA connectors is used for:
 a. component.
 b. composite.
 c. DVI-HDTV.
 d. S-Video.
 ANSWER: c. DVI-HDTV.

26. What type of cable should be run between a satellite dish and its receiver?
 a. Cat 5e
 b. RG-59U
 c. RG-6U
 d. Any of the above
ANSWER: c. RG-6U

27. When was the first electric car invented?
a) 1830
b) 1985
c) 1832
d) 1945
Answer: c. 1832

28. The moving coil instrument measures the _____ of the signal.
a) Average value
b) R.M.S value
c) Zero value
d) Half value
Answer: b. R.M.S value

29. The PMMC instrument measures the average value of the signal
a) True
b) False
Answer: a. True

30. Electric Vehicles are generally powered by _____
a) Aluminum batteries
b) Lead-acid batteries
c) Sodium batteries
d) Magnesium batteries
Answer: b. Lead-acid batteries

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Program: Diploma in Electrical engineering	Program Code:- EE
Scheme:- I	Semester:- IV
Course:- ETE	Course Code:- 22628

04 .INTELLIGENT MOTOR CONTROL CENTERS	Marks:-18

Content Of Chapter:-

4.1 General Motor Control Centre: Role In Motor Protection And Motor Management. General Block Diagram.Components,Symbol And Function.

4.2 Intelligent Or Smart MCC: Need & The Requirement That Lead To Have Imccs.Role As Compared To Traditional MCC .Functional Block Diagram With General Arrangement.

4.3 Devices And Components Of Typical IMcCs: Intelligent Relay ,Fuse, Control Devices ,Effective Security And Dedicated Software.

4.4 Basic Components Of Intelligent System : Control By Microprocessor & Microcontroller Based System.

4.5 Selection Of MCC: Intelligent And Conventional Types For Typical Applications.

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1. MCC stands for _____

a. Motor Control Center

b. Motor Control Cost

c. Machine Components Center

d. None of the above

Answer : a. Motor Control Center

2. MCC contains _____

a. Fuse

b. MCB

c. MCCB

d. All of the above

Answer : d. All of the above

3. MCC's are typically found in _____

a. large commercial

b. industrial buildings

c. both a and b

d. none of the above

Answer : c. both a and b

4. MCC types are based on _____

a. Based on the voltage supplied

b. Based on the type of operation

c. Based on module division

d. All of the above

Answer : d. All of the above

5. The consideration involved in the selection of the type of electric drive for a particular application depends upon

a. Speed control range and its nature

b. Starting Nature

b. Environmental condition

d. All of the above

Answer : d. All of the above

6. Which of the MCC consists of microprocessor/microcontroller ?

a. Conventional MCC

b. Intelligent MCC

c. Both

d. None

Answer : b. Intelligent MCC

7. Which of the MCC is easy to install ?

a. Conventional MCC

b. Intelligent MCC

c. Both

d. None

Answer : b. Intelligent MCC

8. Which of the MCC is more costly ?

a. Conventional MCC

b. Intelligent MCC

c. Both

d. None

Answer : b. Intelligent MCC

9. Which of the MCC has more future expansion?

a. Conventional MCC

b. Intelligent MCC
c. Both
d. None
Answer : b. Intelligent MCC

10. Which of the MCC contain smart relay ?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : b. Intelligent MCC

11. Which of the MCC stores information and monitor motor?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : b. Intelligent MCC

12. Which of the MCC requires lower maintenance ?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : b. Intelligent MCC

13. Which of the MCC help reduce labor and installation material costs and shorten commissioning time ?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : b. Intelligent MCC

14. Which of the MCC has diagnostic and protective functionalities ?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : b. Intelligent MCC

15. Which of the MCC has low cost ?
a. Conventional MCC
b. Intelligent MCC
c. Both

d. None
Answer : a. Conventional MCC

16. The types of industrial networks are _____
a. Ethernet/IP
b. Modbus RTU/TCP
c. Profibus
d. All of the above
Answer : d. All of the above

17. Intelligent relay can be program to trigger on_____
a. voltage
b. current
c. frequency
d. all of the above
Answer : d. all of the above

18. Smart fuses include _____
a. battery protection
b. fuse
c. both
d none
Answer : c. both

19. IMCC stands for _____
a. Intelligent Motor Control Center
b. Instant Motor Carrying Control
c. Imaginary Motor Control Center
d. None
Answer : a. Intelligent Motor Control Center

20. Which of the MCC has security and dedicated software ?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : b .Intelligent MCC

21. Which of the MCC has more faults ?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : a. Conventional MCC

22. Which of the MCC has a lot of wirings?
a. Conventional MCC
b. Intelligent MCC
c. Both
d. None
Answer : a. Conventional MCC

23. PLC stands for _____
a. Programmable Logic Controller
b. Pre Lock Controller
c. Processor Logic Cost
d. None of the above
Answer : a. Programmable Logic Controller

24. SCADA stands for ____
a. Super Control and Data Administration
b. Supervisory Control and Data Acquisition
c. State Control and Data Control
d. None
Answer : b. Supervisory Control and Data Acquisition

25. What is the need of IMCC ?
a. It makes the system automatic and removes the manual operations.
b. It is more precise than traditional MCC
c. Less manual work is required
d. All of the above
Answer : d. All of the above

26. What are the disadvantages of conventional MCC ?
a. Cost
b. Manually operated
c. Maybe difficult to identify faulty in MCC
d. All of the above
Answer : d. All of the above

27. Motor control centers have been around since ____
a. 1950
b. 2000
c. 2010
d. 2020
Answer : a. 1950

28. For selecting MCC _____ should be consider
a. cost

b. future expansion

c. features

d. all of the above

Answer : d. all of the above

29. MPCB stands for

a. motor protection circuit breaker

b. motor power circuit breaker

c. machine protection control breaker

d. none

Answer : a. motor protection circuit breaker

30. MCCB stands for

a. Moulded Case Circuit Breaker

b. Motor Case Circuit Breaker

c. Machine Control

d. none

Answer : a. Moulded Case Circuit Breaker

31. A relay is said to be intelligent if it has the feature/s of

a) Built-in network communication

b) Programming facility to set the protective parameters

c) Diagnostics

d) All of the above

Answer : b. Programming facility to set the protective parameters

32. In smart fuse _____

a. voltage can be programmatically set

b. current can be programmatically set

c. both

d. none

Answer : c. both

33. The main function of the fuse is _____

a. prevent excessive current

b. open the circuit

c. close the circuit

d. none

Answer : a. prevent excessive current

34. The relay is a _____

a. electromagnetic switch

b. electrical switch

c. mechanical switch

d. none

Answer : a. electromagnetic switch

35. IMCC requires…
a. Effective communication networks with high bandwidths
b. Extensive process data
c. Components for Proper diagnostic features
d. All of the above
Answer : d. All of the above

36. Intelligent MCC is smart MCC because.
a. It has multiple feeders
b. It has a common power busbar
c. It has multiple combination starters
d. It has communication capable motor management device
Answer : d. It has communication capable motor management device

37. Motor control involves….
a. Starting the motor.
b. Stopping the motor.
c. Direction and speed controls of the motor.
d. All of the above.
Answer : d

38. Identify the component/s of the motor-supply circuit.
a) Circuit-breaker.
b) Fuse.
c) Power Contacts.
d) All of the above
Answer : d. All of the above

39. Red push-button is generally used to…
a) Start the motor
b) Accelerate the motor
c) Decelerate the motor
d) Stop the motor
Answer :. d) Stop the motor

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05 – Tariff Metering And Billing	Marks:-016

Content of Chapter:-
5.1 Tariff: Power Purches, Power Purches Agreement ,Power Purches Cost.
5.1.1 Tariff Design: Key Factor For Tariff Design, Major Components Of An Electricity Bill, Various Slab In Billing.
5.1.2 Special Tariff : Average Billing Rate, Aggregated Revenue Requirement, Abt,Tod Structure Etc.
5.1.3 Kvah Tariff : A Billing Method For Ht & Lt Consumer ,Billing Methodology, Billing Calculation.
5.2 Metering & Bill Management: Working Of Net Metering & Gross Metering, Merc Rules For Net Metering Bill. Application Of Net Metering For Integration Of Grid System.

Q1. What is the difference between two part tariff and maximum demand tariff?
a. A separate meter is used.
b. A separate maximum demand meter is used.
c. Semi fixed charges are also included.
d. All of these
ANSWER: b. A separate maximum demand meter is used.

Q2. This tariff is applied for which kind of consumers?
a. Big consumers.
b. Small consumers.
c. Residential consumers.
d. All of these.
ANSWER: a. Big consumers.

Q3. Why is this tariff not applicable to domestic consumers?
a. Low maximum demand.
b. Low load factor.
c. Lower energy consumption.
d. Low power factor.
ANSWER: a. Low maximum demand.

Q4. Why is a big consumer charged at a lower rate than the small consumer?
a. Their maximum demand is small.
b. It improves the load factor.
c. Both (a) and (b).
d. None of these.
ANSWER: b. It improves the load factor.

Q5. What is the power factor tariff?
a. It considers only maximum demand.
b. It considers only semi fixed charges and the power factor.
c. It considers only power factor.
d. It considers the load factor.

Q6. What is consequence of low power factor?
a. Increases the rating of station equipment's only.
b. Only line losses increases.
c. Both (a) and (b).
d. Neither of these.
ANSWER: c. Both (a) and (b).

Q7. A consumer having lower power factor contributes towards which factor?
a. Semi fixed charges.
b. Fixed charges.
c. Running charges.
d. Penalty is imposed.
ANSWER: b. Fixed charges.

Q8. Which tariff is also known as the average power factor tariff?
a. Sliding scale tariff.
b. kW tariff.
c. kVAR tariff.
d. kVA maximum demand tariff.
ANSWER: a. Sliding scale tariff.

Q9. What is maximum value of power factor?
a. 0.5
b. 1
c. 1.5
d. 0.95
ANSWER: b. 1

Q10. Active power and apparent power are respectively represented by?
a. kW and kVAR
b. kVAR and kVA
c. kVA and kVAR
d. kW and kVA
ANSWER: d. kW and kVA

Q11. Which among the following happens in a low power factor?
a. Large kVA rating of the equipment.
b. Greater conductor size.
c. Reduced handling capacity of the system.
d. All of the above.
ANSWER: d. All of the above.

Q12. Lower power factor is usually not due to
a. Discharge lamp.
b. Arc lamps.
c. Incandescent lamps.
d. Induction furnace.
ANSWER: c. Incandescent lamps.

Q13. For a consumer what is the most economical power factor?
a. 0.25 – 0.5 lagging
b. 0.25 – 0.5 leading.

c. 0.85 – 0.95 lagging.
d. 0.85 – 0.95 leading.
ANSWER: c. 0.85 – 0.95 lagging.

Q14. The primary reason for the low power factor is due to the installation of
a. Induction motors
b. DC motors
c. Synchronous motors.
d. Commutator motors.
ANSWER: a. Induction motors

Q15. For which among the following consumers is penalty imposed for low power factor?
a. Residential and commercial consumers.
b. Industrial consumers.
c. Agricultural consumers.
d. All of the above.
ANSWER: b. Industrial consumers.

Q16. Power factor can be improved by connecting which among these?
a. Static capacitors.
b. Resistors.
c. Synchronous condensers.
d. Both (a) and (c).
ANSWER: d. Both (a) and (c).

Q17. What is the advantage of the static capacitors?
a. Low losses.
b. Easy installation.
c. Lower maintenance.
d. All of the above.
ANSWER: d. All of the above.

Q18. Which among these is the advantage of synchronous condensers?
a. Help in achieving the stepless control of power factor.
b. The motor windings have a lower thermal stability.
c. The maintenance cost is low.
d. All of the above.
ANSWER: a. Helps in achieving the stepless control of power factor.

Q19. Phase advancers are used for which among the following machines?
a. Transformers
b. Synchronous machines.
c. Induction motors.
d. DC machines.
ANSWER: c. Induction motors.

Q20. What is the main disadvantage of phase advancers?
a. Cannot be used for motors below 200 H.P
b. Produces noise.
c. Can be used where synchronous motor is un admissible.
d. None of these.

ANSWER: a. Cannot be used for motors below 200 H.P

Q21. The most suitable location for the power factor improvement device is
a. Near the electrical appliance which is responsible for the poor power factor.
b. At the sending end.
c. At the receiving end in case of transmission lines.
d. Both (a) and (c).
ANSWER: d. Both (a) and (c).

Q 22. Which of following is correct statement about Simple tariff?
a. Has no discrimination of consumers
b. Charges more to commercial users
c. Encourages use of electricity
d. Is most commonly used tariff method
ANSWER: Has no discrimination of consumers

Q 23 The tariff in which power factor is taken as reference:
a. Sliding scale tariff
b. kVA maximum demand tariff
c. kW and kVAR tariff
d. All of these
Answer: d. All of these

Q 24. Two part tariff is charged on what basis?
a. Connected load
b. Units consumed.
c. Maximum demand.
d. Both (b) and (c).
ANSWER: d. Both (b) and (c).

Q 25. Fixed charge is dependent on what factor?
a. Energy consumption
b. Maximum demand
c. Peak load demand
d. All of the above
ANSWER: b. Maximum demand

Q 26. A variable charge is based on what?
a. Energy consumption
b. Maximum demand
c. Peak load demand
d. All of the above.
ANSWER: a. Energy consumption

Q27. What is the main disadvantage of two port tariff?
a. He has to pay semi fixed charges.
b. He has to pay fixed charges.
c. He has to pay running charges.
d. None of the above.
ANSWER: b. He has to pay fixed charges.

Q 28. What all are included in the three part tariff?
i. Fixed charges
ii. Running charges
iii. Semi fixed charges.

a. i, ii and iii
b. i and ii
c. i and iii
d. ii and iii.
ANSWER: a. i, ii and iii

Q 29. The most ideal tariff for the consumer is which tariff?
a. Two part tariff.
b. Three part tariff.
c. Both (a) and (b).
d. None of the above.
ANSWER: b. Three part tariff.

Q 30. What is the difference between two part tariff and maximum demand tariff?
a. A separate meter is used.
b. A separate maximum demand meter is used.
c. Semi fixed charges are also included.
d. All of these.
ANSWER: b. A separate maximum demand meter is used.

Q 31. This tariff is applied for which kind of consumers?
a. Big consumers.
b. Small consumers.
c. Residential consumers.
d. All of these.
ANSWER: a. Big consumers.

Q32. Why is this tariff not applicable to domestic consumers?
a. Low maximum demand.
b. Low load factor.
c. Lower energy consumption.
d. Low power factor.
ANSWER: a. Low maximum demand.

Q 33. Why is a big consumer charged at a lower rate than the small consumer?
a. Their maximum demand is small.
b. It improves the load factor.
c. Both (a) and (b).
d. None of these.
ANSWER: b. It improves the load factor.

Q 34. Having two separate units for process heat and power is?
a) useful
b) useless
c) pollution reducing
d) none of the mentioned
Answer: b.

Q 35. A plant producing both, electrical power & process heat simultaneously is?
a) Cogenital plant
b) Cogenerial plant
c) Cogeneration plant
d) Conglomerate plant.
Answer: C

Q 36. In a back pressure turbine _____
a) pressure at the exhaust from the turbine is the saturation pressure corresponding to the temperature desired in the process
b) pressure at the entrance of the turbine is the saturation pressure corresponding to the temperature desired in the process
c) pressure at the exhaust from the turbine is the saturation pressure corresponding to the pressure desired in the process
d) none of the mentione
Answer: a. pressure at the exhaust from the turbine is the saturation pressure corresponding to the temperature desired in the process

Q 37. In a by-product power cycle?
a) the power is produced initially
b) power production is in the middle stages of the cycle
c) power production is after the cycle has ended
d) none of the mentioned
Answer: c) power production is after the cycle has ended

Q 38. Back pressure turbines are usually _____ with respect to their power output.
a) large
b) small
c) very large
d) very small
Answer: b) small

Q 39. In terms of cost per MW compared to condensing sets of the same power, the back pressure turbines are?
a) more expensive
b) cheaper
c) costly
d) none of the mentioned.
Answer: b) cheaper

Q 40. Which of these is not an application of back pressure turbine?
a) desalination of sea water
b) filtration of water
c) process industries
d) petrochemical installation.
Answer: b) cheaper.

Q 41. Back pressure turbine is placed between _____
a) Turbine & Pump
b) Boiler & Pump
c) Turbine & Heat Exchanger
d) Boiler & Turbine.
Answer: d) Boiler & Turbine

Q 42. Which of the following is a good medium for constant temperature heating?
a) Water
b) Steam
c) Coolant
d) Diesel
Answer: b) Steam

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