Electrical Power Generation
MCQs for Electrical Engineering

TEAM DSR

01 Thermal Power Plant : Coal,Gas,Diesel,Nuclear based

Content of Chapter:-

Layout & working of thermal power plant

Properties of fuel used in thermal power plant Marks:-13

Safe practice & working of various thermal power plant: coal,gas,diesel,nuclear based power plant.

Function of the following types of thermal power plant.

a. Coal fired boiler : fire tube & water tube boiler.

b. Gas & diesel based combustion engines.

c. Types of nuclear reactor : Disposal of nuclear waste and nuclear shielding.Thermal power plant in Maharashtra

1. The boiler commonly used in a thermal plant are .

a) Water tube type

b) Fire tube

c) Both (a) & (b)

d) None of these

Ans: c. Both (a) & (b)

2. Water to the boiler is at .

a) Atmospheric pressure.

b) Slightly more than atmospheric pressure.

c) More than steam pressure in the boiler

d) any pressure.

Ans: c. more than steam pressure in the boiler

3. What is the main advantage of the usage of high pressure boilers in a thermal plant?

a) Lower price

b) Increase in efficiency

c) Low grade fuel can be burnt.

d) Both (b) and (c)

Ans: d. Both (b) and (c)

4. The major content of coal in India is .

a) Dust

b) Ash

c) Fly ash

d) Cinder

Ans: b. Ash

5. Which of the following is the essential element for the combustion of fuel?

a) Oxygen

b) Correct fuel air ratio

c) Proper ignition temperature.

d) All of these.

Ans: d. All of these.

6. The thermal efficiency of a steam plant is defined as?

a.) The ratio of heat equivalent of electrical output to the heat of combustion of coal.

b) The ratio of heat of combustion of coal to the heat equivalent of electrical output.

c) The ratio of heat equivalent of mechanical energy transmitted to the turbine shaft to the heat of combustion of coal.

d) The ratio of heat of combustion of coal to the heat equivalent of mechanical energy transmitted to the turbine shaft

Ans: c. The ratio of heat equivalent of mechanical energy transmitted to the turbine shaft to the heat of combustion of coal.

7. Which of the following is a type of Gas Turbine Plant?

a) Single Acting

b) Double Acting

c) Open

d) None of the mentioned

Ans: c) Open

8. A Gas Turbine is which type of combustion plant?

a) External

b) open

c) internal

d) cannot say

Ans: c) internal

9. Which among these is the main component of a gas turbine plant?

a) Condenser

b) Compressor

c) Boiler

d) Both Compressor & Boiler

Ans: b) Compressor

10. Which type of compressor is used in a gas turbine plant?

a) Reciprocating compressor

b) Screw compressor

c) Multistage axial flow compressor

d) Either Reciprocating compressor & Screw compressor

Ans: c) Multistage axial flow compressor

11. The gas turbine power plant mainly uses which among the following fuels?

a) Coal and Peat

b) Kerosene oil and diesel oil and residual oil

c) Gas oil

d) Natural gas and liquid petroleum fuel

Ans: d) Natural gas and liquid petroleum fuel

12. Gas turbine power plant is efficient than steam turbine plant

a).More b)Less c)Same

d)None of the above

Ans a).More

13. A fuel of cetane number 40 has the same ignition quality as a mixture of

a) 40% alpha methyl napthalene and 60% cetane

b) 40% cetane and 60% alpha methyl naphthalene

c) 40% petrol and 60% diesel

d) 40% diesel and 60% petrol

Ans: b) 40% cetane and 60% alpha methyl naphthalene

14. In petrol engines, the delay period is of the order of

a) 0.001 sec

b) 0.002 sec

c) 0.003 sec

d) 0.004 sec

Ans: b) 0.002 sec

15. Which material is most commonly used for shielding?

a) Carbon

b) Concrete

c) Lead

d) All of the mentioned

Ans: c) Lead

16. What is the purpose of testing an internal combustion engine?

a) to conform the data used in design, the validity of which may be doubtful

b) to satisfy the customer regarding the performance of the engine

c) to determine the information, which cannot be obtained by calculations

d) all of the mentioned

Ans: d) all of the mentioned

17.A diesel engine is as compared to petrol engine, both running at rated load.

a) Equally efficient

b) more efficient

c) less efficient

d) all of the mentioned

Ans: b) more efficient

18. Which of the following statement is correct?

a) Compression ratio for petrol engines varies from 6 to 10

b) Petrol engines work on Otto cycle

c) Higher compression ratio in diesel engines results in higher pressures

d) All of the mentioned

Ans d) All of the mentioned

19. .Power loss is important for the design of

a) Generator
b) Motor
c) Feeder
d) Transmission line
Ans: d) Transmission line

20. Alternative source of energy should be utilized such that
a) Fuel used is maximum
b) Generation is maximum
c) Efficient plant should be loaded to maximum
d) Production cost is minimized
Ans: d) Production cost is minimized

21. To improve the overall efficiency of thermal plant
a) Boiler pressure is decreased
b) Load on the units is decreased
c) Initial pressure and temperature and exhaust pressure and temperature are at maximum
d) Additional fuel is used
Ans d) Additional fuel is used

22. Which of the following has highest capital cost?
a) Thermal plant
b) Hydro plant
c) Diesel plant
d) Nuclear plant
Ans: d) Nuclear plant

23. Transfer of power between two power systems take place with power flowing from the system with the
a) Leading power factor
b) Lagging power factor
c) Higher voltage level
d) None of these
Ans: a) Leading power factor

24. For conventional power plants, running cost is minimum for
a) Thermal plant
b) Nuclear plant

c) Hydro plant
d) Diesel plant
Ans c) Hydro plant

25. If fuel input increases, the load on thermal unit
a) Decreases
b) Increases
c) Remain same
d) Bears no relation
Ans: b) Increases

26. If load on the isolated generator is decreased without decreasing the power input to the prime mover speed of the generator
a) Remain unaltered
b) Decrease
c) Increase
d) Uncertain
Ans: c) Increase

27. In interconnected systems, each system
a) Should be seeded with frequency changes
b) Should depend on other for reserve capacity
c) Can provide its own reserve capacity
d) Should operate with flat frequency changes
Ans: c) Can provide its own reserve capacity

28. Speed control by governors of electric generating units normally have a/an
a) Increase of speed with increasing load
b) Decrease of speed with increasing load
c) Decrease of speed with decreasing load
d) Flat load characteristic
Ans: b) Decrease of speed with increasing load

29. Maximum power transferred through the interconnected is called
a) Maximum capacity
b) Percentage regulation
c) Synchronous capacity
d) None of these

Ans c) Synchronous capacity

30. Which of the following generation station has minimum running cost?

a) Thermal power station

b) Hydro-electric power station

c) Nuclear power station

d) None of these

Ans: b) Hydro-electric power station

31. Out of the following which one is not a unconventional source of energy ?

a) Tidal power

b) Geothermal energy

c) Nuclear energy

d) Wind power

Ans: C) Nuclear energy

32. Standard frequency usually for electric supply is

a) 50 Hz

b) 60 Hz

c) 50 to 60 Hz

d) 50 to 55 Hz.

Ans: A) 50 Hz

33. Which of the following is usually not the generating voltage?

a) 6.6 KV

b) 8.8 KV

c) 11 KV

d) 13.2 KV

Ans: B) 8.8 Kv

34. The overall efficiency of the thermal plant is low due to low efficiency of

a) Boiler

b) Alternator

c) steam turbine and condenser

d) Non salient pole rotor

Ans: C) steam turbine and condenser

35. Overall thermal efficiency of steam power station is in the range.

A. 18-24 %
B. 30-40 %
C. 44-62%
D. 68.79%
Ans: B) 30-40 %

36. India???s first Nuclear power plant was installed?
A. Tarapore
B. Kota
C. Kalpakam
D. Nagpu

37. The function of the moderator in a nuclear reactor is to
A. Stop chain reaction
B. Reduce the speed of Neutrons
Ans: b) Reduce the speed of Neutrons

38. Fuel transportation cost is least in?
A. Diesel generating plant
B. Steam power station
C. Nuclear power plant.
Ans: a) Diesel generating plant

39. Coolant used in reactors is.
A. Air
B. Heavy water
C. Liquid metal
D. Graphite
Ans: a) Diesel generating plant

40. Commonly used atomic fuels are
A. Uranium, U-235
B. Plutonium, PU-239
C. Thorium, TH-232
D. All of these

41. Energy produce in nuclear reactor is generally by?
A. Fission

B. Fusion

C. both

D. None of the above

Ans: c) Both

42. Heavy water is?

A. H2O

B. D2O

C. O2

D. s2

Ans: a) H2O

02. Large & micro hydro power plant.

Content of Chapter:-

2.1 Energy conversion process of hydro power plant. Classification of hydro power plant. Construction & working of hydro power plant.Safe practices of hydro power plant. Types of turbine used in hydro power plant

1. Hydro power plant is a

a) Base load plant

b) Peak load plant

c) Average load plant

d) All of above

Ans: a) Base load plant

2. The rotor used in alternator of hydro electrical power is

a) Cylindrical pole

b) Salient pole

c) Non salient pole

d) Round rotor Ans: b) Salient pole

3. Which of the following plant have minimum running cost?

a) Nuclear

b) Thermal

c) Hydro

d) Diesel

Ans: c) Hydro

4. Cost of operation of which plant is least.

a) Gas turbine plant

b) thermal plant

c) Nuclear plant

d) Hydro plant

Ans: d) Hydro plant

5. For low head and high discharge the turbine used is?

a) Kaplan turbine

b) Francis turbine

c) Pelton wheel

d) Journal turbine

Ans: a) Kaplan turbine

6. In hydro electric plant a conduct system for taking water from the intake work to the turbine is known as?

(a) Dam

(b) Reservoir

(c) Pen stock

(d) Surge tank

Ans: c) Pen stock

7. A load curve is a plot of?

a) Load versus generation capacity

b) load versus current

c) load versus time

Ans: c) load versus time

8. Load shedding is done to reduce?

a) To reduce the heat demand

b) To improve power factor

Ans: b) To improve power factor

9. The cost of fuel transportation is minimum in?

a) Gas turbine plant

b) thermal plant

c) Nuclear plant

d) Hydro plant

Ans: d) Hydro plant

10. The cheapest plant in operation and maintenance is

a) Gas turbine plant

b) thermal plant

c) Nuclear plant

d) Hydro plant

Ans: d) Hydro plant

11. Hydroelectric power plant is

a) Non-renewable source of energy

b) Conventional source of energy

c) Non-conventional source of energy

d) Continuous source of energy

Ans: a) Non-renewable source of energy

12. Hydroelectric power plant is mainly located in

a) Flat areas

b) Deserts

c) Hilly areas

d) Deltas

Ans: c) Hilly areas

13. Which of the following is not an advantage of hydroelectric power plant?

a) no fuel requirement

b) low running cost

c) continuous power source

d) no standby losses

Ans: a) no fuel requirement

14. The annual depreciation of a hydro power plant is about.....

a) 0.5% to 1.5%

b) 10% to 15%

c) 15% to 20%

d) 20% to 25%

Ans: A.0.5% to 1.5%

15. The power output from a hydro-electric power plant depends on three parameters.....

a) Head,type and dam of discharge

b) Head,discharge and efficiency of the system

c) Efficiency of the system,type of draft tube and type of turbine used

d) Type of dam,discharge and type of catchment area

Ans: B.Head,discharge and efficiency of the system

16. Location of the surge tank in a hydro-electric station is near to the.....

a) Tailrace

b) Turbine

c) Reservoir

d) None of the above

Ans: C.Reservoir

17. In high head hydro power plant the velocity of water in penstock is about.....

a) 1 m/s

b) 4 m/s

c) 7 m/s

d) 12 m/s

Ans: C.7 m/s

18. Francis,kaplan and propeller turbines fall under the category of.....

a) Impulse turbine

b) Reaction turbine

c) Impulse reaction combined

d) Axial flow

Ans: B.Reaction turbine

19. Hydroelectricity generate ?

a) non-renewable electricity

b) renewable electricity

c) Both A and B

d) None of the above

Ans: b). renewable electricity

20. The hydro station consumes no water

a) TRUE

b) FALSE

Ans: a) TRUE

21. Hydropower was referred to as coal.

A. black

B. blue

C. white

D. yellow

Ans: C) white

22. Which of the following are Advantages Hydroelectricity?

A. Low cost

B. Reduced CO2 emissions

C. Hydropower is a flexible source of electricity

D. All of the above

Ans: D) All of the above

23. Pico hydro is a term used for hydroelectric power generation of under?

A. 1 KW

B. 5 KW

C. 10 KW
D. 20 KW

Ans: B) 5 KW

24. Which of the following statement is true about hydroelectric power plant?

A. Hydroelectric power plants are multipurpose
B. Due to non-uniform flow of water frequency control in such plants is very difficult
C. Hydroelectric power plant has high running cost
D. Water is used as fuel in hydroelectric power plant

Ans: A) Hydroelectric power plants are multipurpose

25. The amount of electrical energy that can be generated by a hydroelectric power plant depends upon

A. Head of water
B. Quantity of water
C. Specific weight of water
D. Efficiency of Alternator

Ans: B. Quantity of water

26. Which element of hydroelectric power plant prevents the penstock from water hammer phenomenon?

A. Valves and Gates
B. Draft tubes
C. Spillway
D. Surge Tank

Ans: D) Surge Tank

27. Dam having very wide base as compared to its height is called

A. buttress dam
B. arch dam
C. earth dam

D. solid gravity dam

Ans: C) earth dam

28. Most hydroelectric power comes from the potential energy of dammed water driving a water turbine and generator

A. Yes
B. No
C. Can be yes or no
D. Can not say

Ans: C) Can be yes or no

29. Reaction turbines are employed for:

a) Low heads
b) Medium heads
c) Both of these
d) None of these

Ans:c) Both of these

30 .A hydro-electric power plant with 150-meter head and 8*10^9 kg of water will generate how much energy if overall efficiency is 82%

a) 3.82 * 10^13 kWh
b) 4.98 * 10^13 kWh
c) 9.65 * 10^13 kWh
d) 9.98 * 10^13 kWh

Ans: c) 3. 82* 10^13 kWh

31. given methods, which method is used to produce electricity in a hydroelectric power plant:

a) Heat energy of water converted to mechanical energy
b) Potential energy of water converted to mechanical energy
c) Ionization of water to obtain chemical energy

d) All of these

Ans :b). Potential energy of water converted to mechanical energy 32 .What type of hydropower plant does not use a dam:

a) Impoundment
b) Run of river
c) Pumped storage

Ans:.b) Run of river

33. Which of the following is not a requirement for site selection of hydroelectric power plant?

a) Availability of water
b) Large catchment area
c) Rocky land
d) Sedimentation

Ans:. d) Sedimentation

34. The amount of electrical energy that can be generated by a hydroelectric power plant depends upon

a) Head of water
b) Quantity of water
c) Specific weight of water
d) Efficiency of Alternator

Ans:. b) Quantity of water

35. water turbine is a rotary machine that converts kinetic energy of water into?

a) potential work
b) mechanical work
c) electric work
d) atomic work

Ans : b) mechanical work

36 .In which year, Viktor Kaplan created the Kaplan turbine, a propeller-type machine.

37 a)1901b)1907

c) 1913
d)0 1927

Ans : C) 1913

38 . Cross-flow turbine also known as?

a) Turgo turbine
b) Jonval turbine
c) Screw turbine
d) Ossberger turbine

Ans : d) Ossberger turbine

39 .Water turbines are mostly found in dams to generate electric power from water potential energy.

a) Yes
b) No
c) Can be yes or no
d) Can not say

Ans : a) Yes

39. Water turbines are divided into groups.

a) 1
b) 2
c) 3
d) 4

Ans : b) 2

40. Kaplan turbine is

a) inward flow turbine
b) tangential flow turbine
c) . axial flow turbine
d) mixed flow turbine

Ans : C) axial flow turbine.

41 .Pelton turbines are used for

a) medium head applications
b) low head applications
c) in steam power plants
d) for high head applications

Ans : d) for high head applications

42. Operating head of Francis turbine is

a) less than 30
b) less than 70 m
c) 30 to 200 m
d) more than 200 m

Ans : C) 30 to 200 m

43. Newton's first law describes the transfer of energy for impulse turbines

a) TRUE
b) FALSE
c) Can be true or false
d) Can not say

Ans : b) FALSE

44. Impulse turbines are often used in very high (>300m/1000 ft) head applications

a) TRUE
b) FALSE
c) Can be true or false
d) Can not say

Ans : a) TRUE

45. For centrifugal pump impeller, what is the maximum value of the vane exit angle?

a) 100 to 150
b) 150 to 200
c) 200 to 250
d) 250 to 300
Ans : c) 200 to 250

46. In which turbine the pressure energy of water is first converted into kinetic energy by means of nozzle kept close to the runner?
a) Impulse turbine
b) Reaction turbine
c) Both Impulse and Reaction turbine
d) None of the mentioned
Ans : a) Impulse turbine

47.. The pressure of water is atmospheric and remains constant while passing over the runner in
a) Impulse turbine
b) Reaction turbine
c) Both Impulse and Reaction turbine
d) None of the mentioned
Ans : a) Impulse turbine

48. The energy of water entering the reaction turbine is
a) fully the kinetic energy
b) fully the pressure energy
c) partly the pressure energy and partly the kinetic energy
d) unpredictable

Answer: c) partly the pressure energy and partly the kinetic energy

49. Which of the following is an example of impulse turbine?
a) Propeller turbine
b) Francis turbine
c) Kaplan turbine
d) Pelton wheel.

Answer: d) Pelton wheel.

50. The runner of turbine always be under pressure of above atmospheric pressure.

a) Turgo

b) Girand

c) Kaplan

d) None of the mentioned

Answer: c) Kaplan

3. SOLAR & BIOMASS BASED POWER PLANT

Content of Chapter:-

Solar Map Of India: Global Solar Power Radiation

Solar Power Technology

A. Concentrated Solar Power Plant. Construction & Working Of Power Tower,ParabolicThrough,Parabolic Collector Etc.

B. Solar Photovoltaic Power Plant : Layout ,Construction,Working.Biomass Based Power Plant:

A. Layout Of Biochemical Based Power Plant.

B. Layout Of Thermo Chemical Based Power Plant.

C. Layout Of Agro- Chemical Based Power Plant.

Features Of Solid,Liquid,Gas Biomasses As A Fuel For Biomass Power Plant

Q 1. Photovoltaic types of solar cells are usually connected electrically in manner.

(A) Series

(B) Parallel

(C) Randomly

(D) Neither series nor parallel

(E) None of these

Answer: a

Q 2.Select the Non-conventional energy sources from the following

(A) Renewable

(B) Non-renewable

(C) Produced from electricity

(D) Produced from heat

(E) None of these

Answer: a

Q 3.Power is generated from in Timarpur.

(A) Urban waste

(B) Solar energy

(C) Hydropower

(D) Wind energy

(E) None of these

Answer: a

Q 4.Electricity generating is the main application of solar cells which is generated from

(A) Water

(B) Sunlight

(C) Wind

(D) Biomass (E).None of these

Answer: b

Q 5.India started the use of non-conventional energy sources in

(A) 1940

(B) 1950

(C) 1960

(D) 1970

(E). None of these

Answer: d

Q 6.The electricity can be produced by solar power, which is a good source.

(A) Commercial

(B) Economical

(C) Commercial and economical

(D Neither commercial nor economical

(E) None of these

Answer: b

Q 7.We can recharge the portable devices by

(A) Solar photovoltaic cells

(B) Solar panels

(C) Solar batteries

(D) Solar dishes (E)None of these

Answer: b

Q 8.The special composition of the solar cells allows the electrons to flow in

(A) Opposite direction

(B) Multiple directions

(C) Single direction

(D) Random direction (E)None of these

Answer: c

Q 9.We can use solar cells in calculators.

(A) True

(B) False

(E) None of these

Answer: a

Q 10.In sunlight hits the panel of solar cells.

(A)Dust (B).Photons

(C) Electrons

(D) Protons (E).None of these

Answer: b

Q 11.India is utilizing Solar energy through

(A) Photovoltaic route

(B) Photometric route

(C) Photo power

(D) Photosynthesis

(E) None of these

Answer: a

Q 12.The base of power generating systems is

(A) Biomass gasification
(B) Coal gasification
(C) Solar energy
(D) Wind energy
(E) None of these

Answer: a

Q 13.The purpose of Wind generator is

(A) Power generation
(B) Heat generation
(C) Power dissipation
(D) Power consumption
(E) None of these

Answer: a

Q 14.The material are de-localized in which is present.

(A) Electrons
(B) Protons
(C) Neutrons
(D) Positrons
(E) None of these

Answer: a

Q 15.India is producing Geothermal energy in

(A) Mumbai
(B) Kerala
(C) Chennai
(D) Himachal Pradesh
(E) None of these

Answer: d

Q 16 .Photovoltaic types of solar cells are usually connected electrically in manner.

(A) Series
(B) Parallel
(C) Randomly
(D) Neither series nor parallel
(E) None of these

Answer: a

Q 17.Select the Non-conventional energy sources from the following

(A) Renewable
(B) Non-renewable

(C) Produced from electricity

(D) Produced from heat

(E) None of these

Answer: a

Q 18.Power is generated from in Timarpur.

(A) Urban waste

(B) Solar energy

(C) Hydropower

(D) Wind energy

(E) None of these

Answer: a

Q 19.Electricity generating is the main application of solar cells which is generated from

(A) Water

(B) Sunlight

(C) Wind

(D) Biomass

(E) None of these

Answer: b

Q 20.India started the use of non-conventional energy sources in

(A) 1940

(B) 1950

(C) 1960

(D) 1970

(E) None of these

Answer: d

Q 21.The electricity can be produced by solar power, which is a good source.

(A) Commercial

(B) Economical

(C) Commercial and economical

(D) Neither commercial nor economical

(E) None of these

Answer: b

Q 22.We can recharge the portable devices by

(A) Solar photovoltaic cells

(B) Solar panels

(C) Solar batteries

(D) Solar dishes

(E) None of these

Answer: b

Q 23.The special composition of the solar cells allows the electrons to flow in

(A) Opposite direction

(B) Multiple directions

(C) Single direction

(D) Random direction

(E) None of these

Answer: c

Q 24.We can use solar cells in calculators.

(A) True

(B) False (E)None of these

Answer: a

Q 25.In sunlight hits the panel of solar cells.

(A) Dust

(B) Photons

(C) Electrons

(D) Protons

(E) None of these

Answer: b

Q 26.Solar energy is the energy obtained by capturing heat and light from the Sun.

A. TRUE

B. FALSE

C. Can be true or false

D. Can not say

Answer: A

Q 27.Solar technology can be broadly classified into?

A. 1

B. 2

C. 3

D. 4

Answer : B

Q 28 Active solar is directly consumed in activities such as drying clothes and warming of air.

A. Passive solar

B. Simple solar

C. Active solar

D. None of the above

Answer : C

Q 29 Absorption of energy carrying particles in Sun's rays called?

A. Neutons

B. Photovoltaic

C. Cells

D. Photons

Answer : D

Q 30 Poly-crystalline cells also known as malty-crystalline cells.

A. Yes

B. No

C. Can be yes or no

D. Can not say

Answer : A

Q 31 The function of a solar collector is to convert.....

A. Solar Energy into Electricity

B. Solar Energy radiation

C. Solar Energy thermal energy

D. Solar Energy mechanical energy

Answer : C.Solar Energy thermal energy

Q 32. Most of the solar radiation received on earth surface lies within the range of.....

A.0.2 to 0.4 microns

B.0.38 to 0.78 microns

C.0 to 0.38 microns

D.0.5 to 0.8 microns

Answer :.0.2 to 0.4 microns

Q 33. For satellite the source of energy is.....

A.Cryogenic storage B.Battery

C.Solar cell

D.Any of the above

Answer : C.Solar cell

Q 34. Reflecting mirrors used for exploiting solar energy are called.....

A. Mantle B.Ponds C.Diffusers D.Heliostats

Answer : D.Heliostats

Q 35. The output of solar cell is of the order of.....

W

B.5 W

C.10 W

D.20 W

Answer : A.1 W

Q 36. Flat plate collector absorbs.....

A.Direct radiation only B.Diffuse radiation only C.Direct and diffuse both D.All of the above

Answer: C.Direct and diffuse both

Q 37. A pyranometer is used for mesurement of.....

A.Direct radiation only B.Diffuse radiation only

C.Direct as well as diffuse radiation D.All of the above

Answer :. C.Direct as well as diffuse radiation

Q 38. Most widely used solar material is.....

A.Arsenic B.Cadmium C.Silicon D.Steel

Answer : C.Silicon

Q 39. Photovoltaic cell or solar cell converts.....

A.Thermal energy into electricity B.Electromagnetic radiation directly into electricity C.Solar radiation into thermal energy

D.Solar radiation into kinetic energy

Answer : Electromagnetic radiation directly into electricity

Q 40. Temperature attained by a flat-plate collector is of the.....

A. Order of about 900C

B. Range of 1000C to 1500C

C. Above 1500C

D. None of the above

Answer : A. Order of about 900C

Q 41. The voltage of a single solar cell is.....

A.0.2 v

B.0.5 v

C.1.0 v

D.2.0 v

Answer : C.0.5 v

Q 42. Solar cells,for power generation,entail the following major disadvantages.....

A.Variable power B.High cost

C.Lack of availability

D.Large area requirement

Answer: B.High cost

Q 43. Thermionic converter utilizes.....

A.Thermionic emission effect B.Peltier effect

C.Seebeck effect

D.None of the above

.Answer: A. Thermionic emission effect

Q 44. Biomass is used in the production of

(a) fibres

(b) chemicals

(c) transportation fuels

(d) biochemicals

Answer: (c)

Q 45. Production of bioethanol is through fermentation of and starch components

(a) alcohol

(b) sugar

(c) milk

(d) acid

Answer: (b)

Q 46. This is also called a biogas

(a) biobutanol
(b) biodiesel
(c) bioethanol
(d) biomethane

Answer: (d)

Q 47. In biomethane, the percentage of carbon dioxide is

(a) 55-60
(b) 35-45
(c) 30-40
(d) 32-43

Answer: (c)

Q 48. By-products generated during the rectification of bioethanol is utilized as

(a) sheep feed
(b) cow feed
(c) dog feed
(d) pig feed

Answer: (c)

Q 49. Bioethanol is mixed with to prepare transport fuel

(a) oil
(b) petrol
(c) kerosene
(d) diesel

Answer: (b)

Q 50. Bioethanol is denatured alcohol, also referred to as

(a) methylene
(b) ethylene
(c) ethylene glycol
(d) methylated spirit

Answer: (d)

Q 51. This forestry material is used as biomass

(a) fish oil
(b) logging residues
(c) manure
(d) tallow

Answer: (b)

Q 52. The aerobic digestion of sewage is utilized in the production of

(a) metal articles

(b) biofuels

(c) biomass

(d) synthetic fuels

Answer: (b)

Q 53. This is an example of starch crops biomass feedstocks

(a) corn stover

(b) wheat straw

(c) orchard prunings

(d) sugar cane

Answer: (d)

Q 54. What is a biomass energy ?

A. Energy genrate from ocean waves.

B. Energy generated from wind

C. Energy genrate from river

D. Energy genrate from plant and animal

Answer ??? D

Q 55. What is another name of biogas ?

A. Biobutanol

B. Biodiesel

C. Bio methane

D. Bio ethanol

Answers - C

Q 56. Biomass is.....

A. Renewable energy resources

B. Non Renewable resources

C. Commercial source

D. None of these

Answer- A

Q 57 Biomass is useful for production of.....

A. Chemicals

B. Fibers

C. Transportation fuels

D. Biochemical

Answer - C

Q 58 Which forest material is used as biomass?

A. Manure

B. Fish oil

C. Tallow

D. logging residues

Answer- D

Q 59 Which of the following term mostly refers in biomass?

A. Chemicals

B. Organic matter

C. Inorganic matter

D. Ammonium compounds

Answer- B

Q 60 Which of the following part not used in biomass?

A. Iron nail

B. Hybrid poplar

C. Trap grease

D. Willow algae

Answer - A

Q 61. To make transport fuel (automobile fuel) the bio ethanol is blended with.....

A. Petrol

B. Diesel

C. Kerosene

D. Oil

Answer- A

Q 62. In biomethane, carbon dioxide persentage is.....

A. 20 - 30

B. 30 - 40

C. 40 - 50

D. 50 - 60

Answer- B

Q 63. Which of the following is example of starch crops biomass feedstocks?

A. Sugar cane

B. Corn stover

C. wheat straw

D. Orchard pruning

Answer- A

Q 64 Which of the following probelm create during biomass production?

A. Deforestation

B. High carbon dioxide emissions

C. Land degradation

D. All of the above

Answer- D

Q 65 Dead organisms also used in biomass

A. True

B. False

Answer- A

Q 66 Which of the following is best source of alcohol ?

A. Tapioca

B. Wood

C. Barley

D. Nobel came

Answer- C

Q 67 The aerobic digestion of sewage is used for production of.....

A. Bio fuel

B. Biomass

C. Metal article

D. Synthetic fuel Answer- A

Q 68 Biomass energy plant efficiency is.....

A. 10 - 20%

B. 20 - 30%

C. 30 - 40 %

D. 40 - 50 %

Answer- C

Q 69. Bio ethanol is subjected to rectification to remove.....

A. Enzymes
B. Sugar
C. Impurities
D. Yeast
Answer- C. Impurities

Q 70. Bio ethanol is mixed with to prepare transport fuel
A. oil
B .Petrol
C. kerosene
D. diesel
Answer- B .Petrol

Q 71 Biomass is used in the production of
(a) fibers
(b) chemicals
(c) transportation fuels
(d) biochemicals

Answer- (c) transportation fuels

Q 72. Production of bio ethanol is through fermentation of and starch components
(a) alcohol
(b) sugar
(c) milk
(d) acid

Answer- (b) sugar

Q 73. This is also called as a bio gas
(a) bio butanol
(b) biodiesel
(c) bio ethanol
(d) bio methane

Answer- (d) bio methan

Q 74. In bio methane, the percentage of carbon dioxide is

(a) 55-60
(b) 35-45
(c) 30-40
(d)32-43

Answer- (d)32-43

Q 75. By-products generated during rectification of bio ethanol is utilized as
(a) sheep feed
(b) cow feed
(c) dog feed
(d) pig feed

Answer-(c) dog feed

Q 76. Bio ethanol is mixed with to prepare transport fuel
(a) oil
(b) petrol
(c) kerosene
(d) diesel

Answer- (b) petrol

04 Wind Power Plant

Marks:-010 Content of

Chapter:-Wind map

of India.

Layout of horizontal axis large wind power plant.

a. Geared wind power plant

b. Direct drive wind power plant.

Salient features of electric generator used in large wind power plant.

a. Constant speed electric generator : SCIG & WRIG

b. Variable speed electric generator : DFIG ,PMSG

1. When was Indian Renewable Energy Development Agency was established?

a) 1967

b) 1975

c) 1987

d) 1992

ANSWER: c) 1987

2. When was the first wind farms installed in India?

a) 1967

b) 1975

c) 1986

d) 1992

ANSWER: c) 1986

3. Where is the largest installation of wind turbines located in the country?

a) Tamil Nadu

b) Maharashtra

c) Gujarat

d) Karnataka

ANSWER: c) Gujarat

4. Which is the Indian state with the highest technical potential in wind power?

a) Gujarat

b) Maharashtra

c) Tamil Nadu

d) Uttar Pradesh

ANSWER: b) Maharashtra

5. Which state has the largest wind power installed capacity in India, as per 2012-13?

a) Gujarat
b) Karnataka
c) Maharashtra
d) Tamil Nadu

ANSWER: a) Gujarat

6. state has the highest estimated potential in biogas?

a) Andhra Pradesh
b) Madhya Pradesh
c) Uttar Pradesh
d) West Bengal

ANSWER : a) Andhra Pradesh

7. state has the highest number of installed plants in biogas?
a) Gujarat
b) Maharashtra
c) Uttar Pradesh
d) West Bengal
ANSWER : b) Maharashtra
8. How much is the energy available in the winds over the earth surface is estimated to be?
a) 2.9 X 120 MW
b) 1.6 X 107 MW
c) 1 MW
d) 5MW
ANSWER : b) 1.6 X 107 MW
9. How much wind power does India hold?
a) 20,000 MW

b) 12,000 MW
c) 140,000 MW
d) 5000 MW
ANSWER : a) 20,000 MW

10. What type of energy is wind energy?
a) Renewable energy

b) Non-renewable energy
c) Conventional energy
d) Commercial energy

ANSWER : a) Renewable energy

11. What are used to turn wind energy into electrical energy?
a) Turbine
b) Generators
c) Yaw motor
d) Blades:

ANSWER: b)) Generators
12. What is the diameter of wind turbine blades?
a) 320 feet
b) 220 feet
c) 80 feet
d) 500 feet

ANSWER: B) 220 Feet

13. At what range of speed is the electricity from the wind turbine is generated? a) 100 ??? 125 mph
b) 450 ??? 650 mph
c) 250 ??? 450 mph
d) 30-35 mph

ANSWER: d) 30-35 mph
14. When did the development of wind power in India began?
a) 1965
b) 1954
c) 1990
d) 1985

ANSWER: c) 1990

15. Wind energy utilizes.....
a) Potential energy of air
b) Kinetic energy of air

c) Both A and B

d) None of these

ANSWER: C) Both A and B

16. What is main source for generation of wind ?

a) Sun

b) Uneven land

c) Rain

d) Season

ANSWER: b) Uneven land

17. Which country is 1st in wind power Installation ?

a) India

b) China

c) Japan

d) Netherland

ANSWER: b) China

18. What is India rank in world for wind power generation

a) 1st

b) 2nd

c) 3red

d) 4th

ANSWER: d) 4th

19. How much total energy available in the wind over the earth surface ?

a) 1.6 * 107 MW

b) 5 MW

c) 2.9 * 120 MW

d) 1 MW

ANSWER: a) 1.6 * 107 MW

20. Wind turbine blads have Types cross section for to extract energy from wind.

a) Elliptical

b) Rectangular

c) Aerofoil

d) All of these

ANSWER: a) Elliptical

21. The following are the types of wind

a) Local wind

b) Local wind

c) Both A and B

d) None of these

Ans ??? c) Both A and B

22. The Nacelle of windmill houses

a) Generator

b) Gear box

c) Brakes

d) All of these

Ans ??? d) All of these

23. First time Wind power developed in India .....

a) 1960

b) 1970

c) 1980

d) 1990

Ans ??? d) 1990

24. Wind speed is measure by using Instrument

a) Manometer

b) Pyranometer

c) Anemometer

d) Orifice

Ans - C

25. At what range of wind speed suitable for wind power generation is.....

a) 0 - 5 m/s

b) 5 - 10 m/s

c) 5 - 25 m/s

d) 25 - 50 m/s

Ans ??? c

26. Which country generate 40 % elasticity by using wind energy ?

a) Portugal

b) England

c) Denmark

d) spain

Ans - C

27. Global cold wind generated from ocean moves to.....

a) Equator

b) Mountains

c) Poles

d) Plain area

Ans - d

28. The power of wind per unit area normal to the normal direction of wind is known as.....

a) Power density

b) Solidity

c) Energy patter factor

d) Wind speed

Ans - a

29. Gradient hight is about meter(m) from the ground.

a) 1000

b) 1500

c) 2000

d) 2500

Ans - c

30. Wind energy is which types of energy resources?

a) Renewable energy

b) Non Renewable energy

c) Commercial energy

d) Conventional energy

Ans - a

31. The maximum wind energy available is directly proportional to.....

a) Cube of wind velocity

b) Air density

c) Square root of rotor diameter

d) All of these

Ans - d

32. Which type of windmill has high efficiency ?

a) Horizontal type windmill

b) Vertical type windmill

c) Magnus effect rotor

d) Darrieus type windmill

Ans - A

33. Wind speed are low closer to earth surface and maximum at higher altitude.

a) True

b) False

Ans - b

34. A turbine converts the kinetic energy of the wind to useful .

a) solar energy

b) electric energy

c). mechanical energy d). chemical energy

Ans : c

35. The wind turbines are largely classified into types.

a) 1

b) 2

c) 3

d) 4

Ans : b

35. is change in wind direction, speed or the height at which the maximum velocity occurs.

a) Mean

b) Turbulance

c) Fluctuation
d) Shear
Ans : d

36. How many Wind speed distribution there?
a) 1
b) 2
c) 3
d) 4
Ans : c

37. Wind patterns are important and are often analyzed using a wind spectrum.
a) TRUE
b) FALSE
c) Can be true or false
d) Can not say
Ans : a

38. Wind flows from pressure area to pressure area.
a) high, high
b) high, low
c) low, high
d) low, low
Ans : b

39. A is a brief increase in wind speed for a very short period of time, typically less than 20 seconds and has a transient characteristic unlike a squall.
a) gust
b) squall
c) windstorm
d) None of the above
Ans : a

40. Which of the following best describes the motion of air on earth?
a) One-dimensional vector
b) Two-dimensional vector
c) A three-dimensional vector
d) A four-dimensional vector
Ans : c

41. Diameter of wind turbine blade is .....

a) 80 feet

b) 220 feet

c) 320 feet

d) 500 feet

Ans - b

42. The blade in wind turbine are connected to .....

a) Nacelle

b) Hub

c) Generator

d) None of these

Ans - b

43. The rate of change of wind speed with respect to hight is called as.....

a) Wind rose

b) Wind shear

c) Wind solidity

d) Wind force

Ans - b

44. The Amount of energy available in wind is directly proportional to of the wind speed.

a) Square power

b) Cube power

c) Square root power of two

d) Square root power of three

Ans ??? b

45. At gradient of hight the shear force will be.....

a) Minimum

b) Maximum

c) Zero

d) None of these

Ans ??? b

46. Gradient hight is about meter(m) from the ground.

a) 1000

b) 1500
c) 2000
d) 2500
Ans - c

47. Wind energy is which types of energy resources?
a) Renewable energy
b) Non Renewable energy
c) Commercial energy
d) Conventional energy
Ans - a

48. The maximum wind energy available is directly proportional to.....
a) Cube of wind velocity
b) Air density
c) Square root of rotor diameter
d) All of these
Ans - d

49. Which type of windmill has high efficiency ?
a) Horizontal type windmill
b) Vertical type windmill
c) Magnus effect rotor
d) Darrieus type windmill
Ans ??? a

50. Wind speed are low closer to earth surface and maximum at higher altitude.
a) True
b) False

Ans ??? b

5 Economics of power generation & interconnected power system.

Content of Chapter:

Related term: connected load ,firm power,cold reserve ,hot reserve ,spinning reserve, base load peak loadplant, load curve ,load duration curve.
Cost og generation: Avarage demand ,maximum demand, load factor,plant load factor. 5.3.Choice of size andnumber of generator unit.Combine operation of power system.
5.4. Causes impact & reason of grid system fault: State grid, National grid,Blackout,Brownout: SampleBlackout & brown out at national & international level.

Q1. What is a load curve?

a. A plot of load vs current.
b. A plot of load vs time.
c. A plot of load vs duration of time.
d. Total number of units generated vs time.

ANSWER: b. A plot of load vs time.

Q2. What does the area under the load curve represent?

a. System voltage.

b. Current.

c. Energy consumed.

d. Maximum demand.

ANSWER: c. Energy consumed.

Q3. What does the highest point on the daily load curve represents?

a. Peak load.

b. Maximum demand.

c. Both (a) & (d).

d. None of these.

ANSWER: b. Maximum demand.

Q4. Load curve of a generation is always

a. Positive slope.

b. Zero slope.

c. Negative slope.

d. Combination of (a), (b) and (c).

ANSWER: d. Combination of (a), (b) and (c).

Q5. If the daily load curve is divided by 24, what does this curve represent?

a. Average load for the day.

b. Connected load.

c. Maximum demand.

d. Demand factor.

ANSWER: a. Average load for the day.

Q6. What does a mass curve represent?

a. Average load.

b. The total energy consumed by the load upto a particular time in a day.

c. The number of hours for which a particular lasts during the day.

d. The variation of load during different hours of the day.

ANSWER: b. The total energy consumed by the load upto a particular time in a day.

Q7. The mass curve is plotted from which of the following curve?

a. Chronological curve.
b. Energy load curve.
c. Load duration curve.
d. Both (a) and (b).

ANSWER: c. Load duration curve.

Q8. What does a load duration curve represent?

a. The varation of load during different hours of the day.

b. Average load.
c. The number of hours for which a particular lasts during the day.
d. None of the above.

ANSWER: c. The number of hours for which a particular lasts during the day.

Q9. What is the shape of the load duration curve?

a. Rectangular shape.
b. Triangular shape.
c. Parabolic shape.
d. Free hand sketch.

ANSWER: a. Rectangular shape.

Q10. Maximum And Minimum loads on the load duration curve is represented on which respective side?

a. Left and Right.
b. Right and Left.
c. Randomly.
d. None of these.

ANSWER: a. Left and Right.

Q11. What does the chronological load curve indicate?

a. Variation in demand factor during 24 hours.
b. Variation of demand from instant to instant during 24 hour.
c. The total energy consumed upto different times of the day.

d. The total number of hours for which a particular load lasts during the day.

Q12. What is the plant capacity factor?

a. A ratio of kWh generated to the product of plant capacity and the number of hours for which the plant is in operation.

b. The ratio of sum of individual maximum demands to the maximum demand on power stations.

c. The ratio of actual energy produced to the maximum possible energy.

d. The ratio of maximum demand on the power station to the connected load

ANSWER: c. The ratio of actual energy produced to the maximum possible energy.

Q13. Capacity factor will be very low when the power plant

a. Is operated as base load plant.

b. Is operated for supplying base load as well as the peak loads.

c. Is operated in emergency only.

d. Is under maintainance.

ANSWER: c. Is operated in emergency only.

Q14. A thermal generating station has a installed capacity of 15 MW and supplies a daily load of 10 Mw for 12 hours and 5 MW for remaining 12 hours. The plant capacity factor for this station is

a. 1

b. 0.75

c. 0.67

d. 0.5

ANSWER: d. 0.5

Q15. In a power station, the cost of generation of power reduces most effectively when

a. Diversity factor alone increases.

b. Both diversity factor and load factor increases.

c. Only load factor increases.

d. Both diversity factor and load factor decreases.

ANSWER: b. Both diversity factor and load factor increases.

Q16. What is the diversity factor?

a. A ratio of kWh generated to the product of plant capacity and the number of hours for which the plant is in operation.

b. The ratio of sum of individual maximum demands to the maximum demand on power stations.

c. The ratio of actual energy produced to the maximum possible energy.

d. The ratio of maximum demand on the power station to the connected load.

ANSWER: b. The ratio of sum of individual maximum demands to the maximum demand on power stations.

Q17. What is operating value of diversity factor?

a. Greater than unity.
b. Less than unity.
c. Always more than unity.
d. Normally more than unity.

ANSWER: a. Greater than unity.

Q18. Diversity factor is helpful in computing which of the following factors?

a. Plant capacity.
b. Average load.
c. Units generated (kWh)
d. Peak demand.

ANSWER: a. Plant capacity.

Q19. A large diversity factor of the load in a power system

a. Reduces the installation cost.
b. Increases the installation cost.
c. Does not affect the installation cost.
d. None of the above.

ANSWER: a. Reduces the installation cost.

Q20. What is the result of the product of diversity factor and maximum demand?

a. Average demand
b. Sum of consumers maximum demand
c. Installed capacity.
d. Generated power.

ANSWER: b. Sum of consumers maximum demand

Q21. Maximum demand on the power system is

a. Sum of the maximum demands of all its consumers.
b. Greatest average load in a specified time.
c. Peak value of load in a specified time.
d. All of the above

ANSWER: b. Greatest average load in a specified time.

Q22. What is demand factor?

a. Average load to maximum demand.
b. Maximum demand to connected load.
c. Connected load to maximum demand.
d. Maximum demand to average load

ANSWER: b. Maximum demand to connected load.

Q23. What is the value of demand factor

a. Greater than unity.
b. Less than unity.
c. Always more than unity.
d. Normally more than unity

ANSWER: b. Less than unity.

Q24. What is connected load?

a. Installed electrical load in the premises of the consumer.
b. Maximum load a consumer draws.

c. Load drawn by a consumer at any instant.
d. None of the abov

ANSWER: a. Installed electrical load in the premises of the consumer.

Q25. The power system experiences peak demand from
a. Midnight to 8 A.M
b. 8 A.M to 2 P.M
c. 2 P.M to 6 P.M
d. 6 P.M to 10 P.M

ANSWER: d. 6 P.M to 10 P.M

Q26. The maximum demand on the power system is 100 MW. If the annual load factor is 40%. Calculate the total energy gener
a. 3761 * 105 kWh
b. 4174 * 105 kWh
c. 3504 * 105 kWh
d. 3500 * 105 kWh

ANSWER: c. 3504 * 105 kWh

Q27. The power demand can be estimated approximately by
a. Load survey method.
b. Mathematical method.
c. Statistical method.
d. Economic parameters

ANSWER: c. Statistical method.

Q28. A generating station has a connected load of 55 MW and maximum demand of 20 MW. What is the demand fac
a. 0.4785
b. 0.3636
c. 2.75
d. 1100
ANSWER: b. 0.3636

Q29. Determine the average demand of a plant if its load factor and maximum demand are 0.60 and 30 MW.

a. 20 MW

b. 18 MW

c. 50 MW

d. 13 MW

ANSWER: b. 18 MW

Q30. Utilisation factor is defined as the ratio of

a. Average demand to the rated capacity of the plant.

b. Maximum demand on the power plant to the rated capacity of the power plant.

c. Rated capacity of the power plant to the maximum demand.

d. None of these

ANSWER: b. Maximum demand on the power plant to the rated capacity of the power plant.

Q31. A consumer consumes 400 kWh per day at a load factor of 0.3. If he increases the load factor to 0.6 without any increase

a. 800 kWh

b. 650 kWh

c. 1125 kWh

d. 425 kWh

ANSWER: a. 800 kWh

Q32. The yearly load duration curve of a power plant is a straight line. The maximum load is 850 MW and minimum load is 650 factor?

a. 0.89, 0.78

b. 0.83, 0.65

c. 0.78, 0.89

d. 0.65, 0.83

ANSWER: c. 0.78, 0.89

Q33. Utilisation factor is defined as the ratio of

a. Average demand to the rated capacity of the plant.

b. Maximum demand on the power plant to the rated capacity of the power plant.

c. Rated capacity of the power plant to the maximum demand.
d. None of these

ANSWER: b. Maximum demand on the power plant to the rated capacity of the power plant.

Q34. A consumer consumes 400 kWh per day at a load factor of 0.3. If he increases the load factor to 0.6 without any increase

a. 800 kWh
b. 650 kWh
c. 1125 kWh
d. 425 kWh

ANSWER: a. 800 kW

Q35. The yearly load duration curve of a power plant is a straight line. The maximum load is 850 MW and minimum l

the utilization factor?

a. 0.89, 0.78
b. 0.83, 0.65
c. 0.78, 0.89
d. 0.65, 0.83

ANSWER: c. 0.78, 0.89

Q36. What is fixed charges?

a. Cost of investment irrespective of energy generated.
b. Operating cost of the fuel along with cost of investment plant.
c. Operating cost only.
d. None of the above

ANSWER: a. Cost of investment irrespective of energy generated.

Q37. What all components are included in the annual operating cost?

a. Fuel, maintenance cost and labour.
b. Interest, taxes, insurance and depreciation.
c. Both (a) and (b)
d. None of these.

ANSWER: a. Fuel, maintenance cost and labour.

Q38. What does the annual fixed cost include?

a. Fuel, maintenance cost and labour.

b. Interest, taxes, insurance and depreciation.

c. Both (a) and (b)

d. None of these.

ANSWER: b. Interest, taxes, insurance and depreciation.

Q39. The capital cost of a power plant depends on?

a. Total installed capacity only.

b. Total number of units only.

c. Both installed capacity and number of units.

d. Neither (a) or (b)

ANSWER: c. Both installed capacity and number of units.

Q40. What is meant by semi fixed charges?

a. It is the cost which is independent of maximum demands and units generated.

b. It is the cost which depends only on the units generated.

c. It is the cost which depends upon the maximum demand but it is independent of units generated.

d. None of thes

ANSWER: c. It is the cost which depends upon the maximum demand but it is independent of units generated.

Q41. The annual depreciation reserve depends on

a. Capital cost only.

b. Salvage value only.

c. On any method of calculation of depreciation factor.

d. All of these.

ANSWER: d. All of these.

Q42. Depreciation charge may be based on which method?

a. Straight line method.
b. Sinking fund method.
c. Both (a) & (b).
d. None of these.

ANSWER: c. Both (a) & (b).

Q43. In a straight line method, annual depreciation charges are calculated by
a. The capital cost minus salvage value divided by the number of years of life.
b. The capital cost divided by the number of years of life.
c. Both (a) and (b).
d. None of these.
ANSWER: a. The capital cost minus salvage value divided by the number of years of life.

Q44. What is the salvage value of the plant?
a. Is always positive.
b. Is zero.
c. Is always negative.
d. May be any of these.
ANSWER: d. May be any of these.

Q45. A transformer costing Rs 90,000 haws a useful life of 20 years. Determine the annual depreciation charge usin
a. 4000
b. 3750

c. 4350
d. 35
ANSWER: b. 3750

Q46. What is tariff?
a. The rate at which electrical energy is produced in the plant.
b. The rate at which electrical energy is supplied to the consumers.
c. Both (a) and (b).
d. None of these.

ANSWER: b. The rate at which electrical energy is supplied to the consumers.

Q47. Flat rate tariff is charged on what basis?

a. Connected load.
b. Units consumed.
c. Maximum demand.
d. Both (a) and (b).

ANSWER: b. Units consumed.

Q48. Domestic consumers are charged?

a. Flat demand tariff.
b. Block rate tariff.
c. Flat rate tariff.
d. Off peak tariff.

ANSWER: b. Block rate tariff.

Q49. Which tariff is used by the small commercial consumers?

a. Maximum demand tariff.
b. Block rate tariff.
c. Three part tariff.
d. Two part tariff

ANSWER: b. Block rate tariff.

Q50. Block rate tariff, where energy charge decreases with the increase in energy consumption,

a. Encourages the consumers for more consumption.
b. Discourages the consumers for more consumption.
c. Encourages the consumers to restrict their demand.
d. Encourages the consumers to improve the power factor

ANSWER: a. Encourages the consumers for mor consumption.

Q51. 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).

Q52. 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

Q53. 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

Q54. 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.

Q55. 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

Q56. 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.

Q56. 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 the

ANSWER: b. A separate maximum demand meter is used.

Q57. 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.

Q58. 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.

Q59. 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.

Q60. 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

ANSWER: c. It considers only power factor.

Q61. What is consequence of low power factor?

a. Increases the rating of station equipments only.
b. Only line losses increases.
c. Both (a) and (b).
d. Neither of these.

ANSWER: c. Both (a) and (b).

Q62. 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.

Q63. 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.

Q64. What is maximum value of power factor?

a. 0.5
b. 1

c. 1.5
d. 0.9

ANSWER: b. 1

Q64. 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

Q65. 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.

Q66. Lower power factor is usually not due to
a. Discharge lamp.
b. Arc lamps.
c. Incandescent lamps.
d. Induction furnace

ANSWER: c. Incandescent lamps.

Q67. 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.

Q68. 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

Q69. 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.

Q70. 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).

Q71. 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.

Q72. Which among these is the advantage of synchronous condensers?
a. Helps 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.

Q73. 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.

Q74. 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 thes

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

Q75. 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).

Q76. Interconnected systems have the advantage of

a. Reduced reserve plant capacity, capital cost per kW and economy in operation.
b. Improved load factor, diversity factor and operation efficiency and increased reliability of supply.
c. All of the above.
d. None of the above.

ANSWER: c. All of the above.

Q77. Major share of power generated in India is through which means?

a. Hydroelectric power plants.

b. Nuclear power plants.
c. Thermal power plants.
d. Gas turbine power plants.

ANSWER: c. Thermal power plants.

Q78. What is the modern trend in electric power generation?

a. To have a large number of small size thermal plants located at different places.
b. To have large size thermal plants near load centre.
c. To have large size thermal plants located near coal fields.
d. None of the above.

ANSWER: c. To have large size thermal plants located near coal fields.

Q79Which among the following plants have the least operating cost?

a. Steam plants
b. Hydro plants
c. Nuclear plants
d. Diesel plants.

ANSWER: b. Hydro plants

Q80. What are the essential requirements for power plants to be operated as peak load plants?

a. Capability of quick start, synchronisation and taking up of system load.
b. Quick response to load variations.
c. Low capital cost.
d. All of these.

ANSWER: d. All of these.

Q81. In a steam power station, electric power is generated at what power?

a. 440 V
b. 1.1 kV
c. 11 kV

d. 33 kV

Q82. Annual operating cost of a generating plant consists of

a. Fixed charges.
b. Semi fixed charges.
c. Operating or running charges.
d. All of these

ANSWER: d. All of these.