

# Telangana ECET 2016

## Model Question Paper with Answers

1. In series type ohm meter , full scale deflection current indicator is marked

- A. zero
- B. infinite
- C. 100 W
- D. 1 MW

2. On changing the speed of an alternator from 4000 rpm to 2000 rpm the generated emf/ph will come

- A. 1/4
- B. 1/2
- C. 1/3
- D. 1/5

3. Semiconductor strain gauge have

- A. Low fatigue life
- B. High gauge factor
- C. Complete linearly
- D. Poor hysteresis characteristics

4. The break down torque of a synchronous motor varies as

- A. 1/ (applied voltage)
- B. 1/ (applied voltage)<sup>2</sup>
- C. Applied voltage
- D. (Applied voltage)<sup>2</sup>

5. In gravity control, control torque is a function of angular deflection  $q$  as

- A.  $\cos q$
- B.  $\sin q$
- C.  $\tan q$
- D.  $\cot q$

6. In terms of slip 'S' the ratio of rotor copper loss to rotor input is

- A. S
- B. (1-s)
- C. 1/s
- D. 1/(1-s)

7. For parallel operation, alternators must have

- A. Same speed
- B. Same kVA rating
- C. Same voltage rating
- D. None of the above

8. The maximum current that can be supplied by an alternator depends on

- A. Speed of the exciter
- B. Number of poles
- C. Exciter current

D. Strength of the magnetic field

**9. Which of the following methods can be used for speed control of an induction motor**

- A. Pole changing
- B. Change of frequency
- C. Cascade control
- D. Any of the above

**10. A delta circuit has each element of value  $R/2$ . The equivalent elements of star circuit will be**

- A.  $2R$
- B.  $6R$
- C.  $3/2R$
- D.  $R/6$

**11. The heat sink disposes off heat mainly by**

- A. Radiation
- B. Natural convection
- C. Forced convection
- D. Conduction

**12. The hardest natural substance is**

- A. Tungsten
- B. Gold
- C. Platinum
- D. Diamond

**13. The melting point of carbon is around**

- A.  $1800^{\circ}\text{C}$

B.  $2150^{\circ}\text{C}$

C.  $3500^{\circ}\text{C}$

D.  $5500^{\circ}\text{C}$

**14. For an ideal noise free transistor amplifier the noise factor is**

- A. Zero
- B. Zero dB
- C. 1dB
- D. Depends on the factor

**15. Force between two charges particles is proportional to**

- A. Inverse of distance
- B. Inverse of square of distance
- C. Inverse of cube of distance
- D. None of the above

**16. Oscillators are widely used in**

- A. Radio broadcasting
- B. Television broadcasting
- C. Radio and television receivers
- D. All of the above

**17. In a capacitor, the electric charge is stored in**

- A. Dielectric
- B. Metal plates
- C. Dielectric as well as metal plates
- D. Neither Dielectric nor metal plates

18. The speed control of a cumulatively compounded dc motor can be affected thorough

- A. Change of armature resistance
- B. Change of armature voltage
- C. Change of armature impedance
- D. None of the above

19. In which of the following meters will require the smallest shunt resistance

- A. 0-20mA
- B. 0-100mA
- C. 0-1mA
- D. 0-10mA

20. The area of hysteresis loop is a measure of

- A. Permeance
- B. Magnetic flux
- C. Energy loss/cycle
- D. Permittivity

21. Equalizer rings in lap wound would dc generators are used to

- A. Provide mechanical balance
- B. Reduce load on bearing
- C. Avoid noise developed in the machine
- D. Avoid unequal distribution of current at the brushes thereby helping to get sparkles communication

22. The critical resistance of the D.C. generator refers to the resistance of

- A. Armature

- B. Load
- C. Field
- D. Brushes

23. The power rating of a 470 W resistor carrying a current of 40mA should be

- A. 1/4 w
- B. 1/2 w
- C. 1w
- D. 2w

24. In case of uniformly distributed winding the value of distribution factor is

- A. 0.995
- B. 0.80
- C. 0.75
- D. 0.50

25. The slip of an induction motor in practical cases

- A. 10%
- B. 3 to 5%
- C. 10 to 12%
- D. 15 to 20%

26. The path of the magnetic flux in a transformer should have

- A. Low reluctance
- B. Low resistance
- C. High reluctance
- D. High resistance

27. Boosters are basically

- A. Inductors
- B. Capacitors
- C. Transformers
- D. Synchronous motors

**28. In a transformer, the copper loss at half load as compared to that at full load will be**

- A. 4 times
- B. 2 times
- C. Half
- D. One fourth

**29. In case of underground cables, the stress is maximum at**

- A. Surface of the cable
- B. Surface of the conductor
- C. Centre of the conductor
- D. The interface of sheath and the conductor

**30. In scott connection the neutral point divides the winding of the teaser transformer in the ratio of**

- A. 1:1
- B. 1:2
- C. 1:3
- D. 1:4

**31. The size of the power cables depends on**

- A. Type of insulation
- B. Current
- C. Voltage
- D. Power factor

**32. The harmonic currents in transformer increase all of the following EXCEPT**

- A. Copper loss
- B. Core loss
- C. Magnetic interference with protective relays
- D. Secondary voltages

**33. If the selling fan when switched on runs at slow speed in the reverse direction, it can be concluded that**

- A. Winding has burnt out
- B. Bearing are worn out
- C. Capacitor is in effective
- D. None of the above

**34. The overall efficiency of a boiler in a thermal power plant is the order of**

- A. 10%
- B. 25 to 30%
- C. 40 to 50%
- D. 70 to 80%

**35. A scott connected transformer cannot paralleled with a**

- A. V-V transformer
- B. Y-V transformer
- C. D-D transformer
- D. Y-Y transformer

**36. Polar dielectric is normally used for**

- A. High frequencies
- B. Micro waves

- C. Dc and power frequencies
- D. None of the above

**37. In a over head transmission lines the effect of capacitance can be neglected when the length of line is less than**

- A. 200 km
- B. 160 km
- C. 100 km
- D. 80 km

**38. Large capacity generators are manufactured to generate power at**

- A. 440v
- B. 6.3 to 10.5 kV
- C. 132 kV to 220 kV
- D. 400 kV

**39. The over voltage surges in power systems may be caused by**

- A. Lighting
- B. Switching
- C. Resonance
- D. Any of the above

**40. A 3 phase, 5000 KVA, 6,6KV generator having 12% sub transient reactance. a 3 phase short circuit occurs at its terminals then fault MVA is**

- A. 21.5
- B. 41.6
- C. 53.33
- D. 75.75

**41. In a hydro electric plant a conduct system for taking water from the intake works to the turbine is known as**

- A. Dam
- B. Reservoir
- C. Penstock
- D. Surge tank

**42. Breaking capacity of circuit breaker is usually expressed in terms of**

- A. Amperes
- B. Volts
- C. MW
- D. MVA

**43. Kaplana turbine is**

- A. A high head mixed flow turbine
- B. An impulse turbine, inward flow type
- C. A reaction turbine, outward flow type
- D. Low head axial flow turbine

**44. A capacitor**

- A. Offers easy path to A.C. but blocks D.C.
- B. Offers easy path to D.V. but blocks A.C.
- C. Offers easy path to both A.C. and D.C.
- D. Blocks A.C.

**45. Load curve is a plot of**

- A. Load versus generation capacity
- B. Load versus current
- C. Load versus time
- D. Load versus cost of power

46. An electric bulb rated 220V is connected to 220V .5 Hz source. Then the bulb

- A. Does not glow
- B. Glows intermittently
- C. Lows continuously
- D. Fuses out bulb

47. which soil had the maximum specific resistance

- A. Black cotton soil
- B. Sand
- C. Peat
- D. Loamy soil

48. Transformers contribute to radio interference due to

- A. Corona discharge in air
- B. Sparking
- C. Internal or partial discharge in insulation
- D. Any of the above

49. Load shedding is done

- A. To reduce heat demand
- B. To improve power factor
- C. To run the equipment efficiency
- D. To repair the machine

50. A capacitive reactance of a 50uF capacitor connected to 1.5v,60Hz frequency system is

- A. 0.53W
- B. 5.3W

- C. 53W
- D. 530W

51. The differential protection principle is used in the protection of

- A. Generators
- B. Transformers
- C. Feeders
- D. All of the above

52. Merz-price protection is used on

- A. Substations
- B. Circuit breakers
- C. Transmission lines
- D. Generators

53. Which metal has highest electrical conductivity

- A. Steel
- B. Silver
- C. Aluminium
- D. Gold

54. Power factor for pure conductor is

- A. Unity
- B. Zero
- C. Infinite
- D. 0.707

55. Ordinary tramway is the most economical means of transport for

- A. A very dense traffic of large cities

- B. Medium traffic densities
- C. Rural services
- D. Sub-urban services

**56. A crystal oscillator is used because**

- A. It gives high output voltage
- B. It works at high efficiency
- C. The frequency of oscillations remains substantially constant
- D. It requires very low dc supply voltage

**57. In electrode positive welding.....of the total heat is produced at the electrode**

- A. One third
- B. Two third
- C. One fourth
- D. Useful

**58. The binary number 101101 is equal to octal number**

- A. 65
- B. 55
- C. 51
- D. 45

**59. Overhead welding position is thought to be the most**

- A. Hazardous
- B. Difficult
- C. Economical
- D. Useful

**60. Ultimate aim of using electrode coating is to**

- A. Providing shielding to weld pool
- B. Prevent atmospheric contaminations
- C. Improve head quality
- D. Cleans the base metal

**61. In 8085 TRAP is**

- A. Always maskable
- B. Cannot interrupt a service sub routine
- C. Used for catastrophic events like temporary power failure
- D. Lowest priority interrupt

**62. Floodlighting is not used for purpose**

- A. Reading
- B. Aesthetic
- C. Advertising
- D. Industrial

**63. Normal working temperature of a filament in incandescent lamp**

- A. Upto 2000°C
- B. Upto 1500°C
- C. Upto 3000°C
- D. Upto 2900°C

**64. The motor commonly used in computers and digital system is**

- A. DC shunt motor
- B. Induction motor
- C. Stepper motor

D. Synchronous motor

B. 500 volts

C. 33,000 volts

D. 650 volts

**65. The copper plate dimensions in plate earthing is**

A. 60cm x 60cm

B. 60cm x 60cm x 3cm

C. 60cm x 60cm x 30cm

D. 60cm x 60cm x 2cm

**70. The speed regulation of a synchronous motor**

A. Unity

B. 1%

C. 0.1%

D. Zero

**66. Which of the following is best conductors of electricity**

A. Cold water

B. Distilled water

C. Warm water

D. Salt water

**71. Which of the following element has four valance electrons**

A. Silicon

B. Antimony

C. Boron

D. Phosphrous

**67. If one cycle at ac waveform occurs every milli second, the frequency will be**

A. 1/1000 Hz

B. 50 Hz

C. 100 Hz

D. 1000 Hz

**72. In case of low and medium voltage circuits, the permissible voltage variation is**

A. 1%

B. 5%

C. 12.5%

D. 20%

**68. The value of earth resistance is**

A. Voltage/current

B. Power/voltage

C. Voltage/cable size

D. Voltage/leakage current

**73. Which of the following is the fastest switching device**

A. JFET

B. BJT

C. MOSFET

D. Triode

**69. According to Indian electricity rules the medium voltage should not exceed**

A. 250 volts

**74. Thyristor can be termed as**



- A. DC switch
- B. AC switch
- C. Both A and B
- D. Square wave switch

75. The direct lighting scheme is most efficient but is liable to cause

- A. Monotony
- B. Glare
- C. Hard shadows
- D. Both A and C

76. Low frequency response of amplifier is mainly limited by

- A. Input capacitor
- B. By pass capacitor
- C. Output capacitor
- D. Biasing capacitor

77. In automobiles the sound is produced by horn due to

- A. Magnetostiction
- B. Vibrating diaphragm
- C. Moving coil
- D. Oscillating coil

78. The direct current system used for tramways has voltage of about.....volts

- A. 750
- B. 1500
- C. 3000
- D. 2400

79. The speed/ time curve for a city service train has no.....period

- A. Coasting
- B. Free running
- C. Acceleration
- D. Braking

80. A zener diode is invariably used with

- A. Forward bias
- B. Reverse bias
- C. Zero bias
- D. None of the above

81. A train has a mass of 500 tonnes. Its weight is

- A. 500 twt
- B. 5,00,000 kg-wt
- C. 5000kg-wt
- D. 50 t.wt

82. In SAP-1 has..... T states, period during which register contents change

- A. Two
- B. Four
- C. Six
- D. Eight

83. Low voltage circuit breakers have rated voltage of less than

- A. 220V
- B. 400V
- C. 1000V

84. A three phase to 3 phase cycle converter requires

- A. 18 SCRs for 3 phase device
- B. 18 SCRs for 6 pulse device
- C. 36 SCRs for 3 pulse device
- D. 36 SCRs for 4 pulse device

85. A forward voltage can be applied to an SCR after its

- A. Anode current reduces to zero
- B. Gate recovery time
- C. Reverse recovery time
- D. Anode voltage reduces to zero

86. In a 3 phase semi converter, the three SCRs are triggered at an interval of

- A.  $60^\circ$
- B.  $90^\circ$
- C.  $120^\circ$
- D.  $180^\circ$

87. Microprocessor 8085 is the enhanced version of .....with essentially the same construction set

- A. 6800
- B. 68000
- C. 8080
- D. 8000

88. A state during which nothing happens is known as

- A. LDA
- B. Nop
- C. MAR
- D. QP code

89. Voltage dependent resistors are used

- A. As current stabilizers
- B. As heating elements
- C. For inductive circuits
- D. To suppress surges

90. Which of the following represents the efficiency of an amplifier

- A.  $(1 - \text{distortion})$
- B. Ac power out dc power dissipated at the output electrode of an amplifier
- C. Ac power output
- D. Ac power output dc power dissipated at the output electrode

91. Which of the following statement is not TRUE in case of FET

- A. It has high input impedance
- B. It is less noisy than bipolar transistor
- C. It has large (gain X band width)
- D. All of the above

92. Oscillators have

- A. No feed back
- B. Negative feedback
- C. Positive feedback
- D. Either positive or negative feed back

**93. A transistor amplifier with 85% efficiency is like to be**

- A. Class A
- B. Class B
- C. Class C
- D. Class AB

**94. The decimal equivalent of the binary number 10110.0101011101 is**

- A. 22.3408216500
- B. 22.3408216750
- C. 22.3408213125
- D. 22.3408203125

**95. The main advantage of using crystal oscillator is**

- A. Constant frequency of oscillations
- B. Suitability for low voltages
- C. High efficiency
- D. High output voltage

**96. A boot strap generally incorporates**

- A. CB configuration
- B. CE configuration
- C. Emitter follower
- D. None of the above

**97. The e.m.f of a storage battery depends upon**

- A. Size of the electrodes
- B. Shape of the cell
- C. Nature of the electrodes
- D. All of the above

**98. Which of the following can have positive or negative charge**

- A. Electron
- B. Ion
- C. Hole
- D. Neutron

**99. Radio frequency choke air cored to**

- A. Keep frequency low
- B. Keep frequency high
- C. Keep inductive reactance low
- D. Keep inductive reactance high

**100. Which of the following is a ferromagnetic material**

- A. Nickel
- B. Copper
- C. Aluminium
- D. Tungsten