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B.TECH Part- Sem-

Subject - Extra High Voltage AC Transmission

Paper Code-197045802 SLR- FI-290 Set-A

Time: _____ Max. Marks: _____

Q1. The percentage power loss in 750 kV transmission line is nearly equal to	
A. 3.27	B. 4.76
C. 0.78	D. 2.5

Q2. A sphere-sphere gap is used in HV laboratories for	
A. Measurement of EHV	B. Calibrating other measuring apparatus
C. Both A and B	D. None of these

Q3. The conductors of an EHV line is selected on the basis of	
A. Current carrying capacity	B. Corona and RI performance
C. Line voltage	D. None of these

Q4. The bundle conductors are preferred for EHV transmission line because	
A. It is easy to fabricate thin conductors and combine them to make a bundle	B. Overall inductance of the line is reduced and corona loss and radio influences are minimum
C. Height of the tower is reduced and hence cheap transmission	D. Fabrication of the conductor is cheap

Q5. The velocity of travelling wave through a cable of relative permittivity 9 is	
A. 9×108 m/sec	B. 3×108 m/sec
C. 108 m/sec	D. None of the above

Q6. Transfer reactance of a line is reduced by

A. Series compensation	B. Shunt compensation
C. Mixed series & shunt compensation	D. It cannot be compensated

Q7. Voltage gradient on a transmission line conductor is highest

A. At the surface of the conductor	B. At the centre of the conductor
C. At the distance equal to one radius from the surface	D. None of these

Q8. An infinite bus bar has a surge impedance equal to

A. Zero	B. infinite
C. Surge impedance of the transmission line connected to it	D. All of these

Q9. Which of the following frequency variation for power frequency is as per IS?

A. 2.5%	B. 5%
C. +5%	D. +2.5%

Q10. Transmission lines are transposed to

A. Reduce corona loss	B. Reduce skin effect
C. Prevent interference with neighbouring telephone lines	D. Prevent short circuit between any two lines

Q11. For 100% series compensation, resonance occur at

A. Power frequency	B. 50% of Power frequency
C. 40% of Power frequency	D. None of the above

Q12. The power loss due to corona effect depends on

A. The surface condition of the conductor	B. The material density of the conductor

C. Both A & B	D. None of the above

Q13. Third mode of propagation is called as	
A. Line to ground	B. Phase to phase
C. Homopolar	D. Inter-phase

Q14. The function of steel wire in an ACSR conductor is to	
A. Compensate for skin effect	B. Take care of surges
C. Provide additional mechanical strength	D. Reduce inductance

Q15. What does the standing wave ratio (SWR) of unity imply?	
A. Transmission line is open circuited	B. Transmission line is short circuited
C. Transmission lines characteristic impedance is equal to load impedance	D. Transmission lines characteristic impedance is not equal to load impedance

Q16. Draining of trapped charge of line is done by	
A. Main breaker	B. Auxiliary breaker
C. Air circuit breaker	D. Shunt reactors

Q17. Series capacitors are used to	
A. Improve line voltage	B. Compensate for line inductive reactance
C. Compensate for line capacitive reactance	D. None of the above

Q18. Refraction coefficient of current (JT) is given by	
A. $\frac{2Z_0}{Z_0+Z_t}$	B. $\frac{Z_0-Z_t}{Z_0+Z_t}$
C. $\frac{2Z_t}{Z_0+Z_t}$	D. $\frac{Z_t-Z_0}{Z_0+Z_t}$

Q19.
Which type of corona discharge gives interference to radio broadcast

A. Pulse type	B. Pulseless type
C. Glow corona	D. None of the above

Q20.
Difference between surge impedance and characteristic impedance is that in surge impedance

A. LIne resistance is considered.	B. Line impedance is assumed to be zero
C. Line capacitance is assumed to be zero	D. Line resistance is assumed to be zero

Q21.
In lossless transmission line theoretically have

A. r = l = 0	B. l = g = 0
C. g = c = 0	D. r = g = 0

Q22.
If the shunt admittance of the transmission line is neglected, the maximum power will occur when torque angle

A. 45°	B. -90°
C. 90°	D. 180°

Q23.
Why are the conductors used for higher voltage transmission stranded?

A. Ease of handling	B. Cheaper cost
C. Reduced resistivity	D. Increase in tensile strength.

Q24.
On a lightly loaded transmission line

A. Receiving end voltage can exceed sending end voltage	B. Receiving end voltage can's exceed sending end voltage
C. Capacitive charging current is reduced	D. None of these

Q25.
As the transmission voltage increases the volume of the conductor

A. Increases	B. Decreases
C. Will not change	D. Will increase proportionally

Q26.
The crest time of pulse properties for positive cycle is

A. 20 ns	B. 30 ns
C. 40 ns	D. 50 ns

Q27.
Which of the following method may be used to inject reactive power in the transmission line?

A. Series capacitor	B. Synchronous capacitors
C. Both A & B	D. None of these

Q28.
The velocity of propagation of electromagnetic waves on overhead line is

A. 3 x 108 m/s	B. 3 x 108 km/s
C. 3 x 1010 m/s	D. 3 x 108 km/hour

Q29.
Charging current of a line is more at

A. Mid-point	B. Sending end
C. Receiving end	D. One-third of line

Q30.
Insulation of the modern EHV lines is designed based on

A. Lighting voltage	B. Switching voltage
C. Corona	D. RI

Q31.
The entire line performance can be determined by

A. Sending end power circle diagram	B. Receiving end power circle diagram
C. Universal power circle diagram	D. A or C

Q32.
The most accurate and versatile method of achieving reactive power compensation is by using

A. Switched capacitors r	B. Fixed capacitor with controlled reactor
C. Saturable reactor with capacitor bank	D. Switched capacitor with controlled reacto

Q33.
Which one of the following statement is not correct for the use of bundled conductors in transmission lines?

A. Control of voltage gradient	B. Reduction in corona loss
C. Reduction in radio interference	D. Increase in interference with communication lines

Q34.
Constant voltage transmission have the advantage(s) of

A. Increase of short-circuit current of the system	B. Large reserve of lines in case of line trouble
C. Improvement of power factor at the times of moderate and heavy loads	D. All of these

Q35.
Operating voltage 750 KV line gives AN at a level of

A. 50 dB	B. 55.4 dB
C. 52 dB	D. 58.5 dB

Q36.
Voltage control in a power transmission line is achieved by

A. Booster transformer	B. Tap-changing transformer
C. Injection of reactive power	D. All of these

Q37.
Series capacitors on transmission lines are of little use when the required reactive voltamperes are

A. Small	B. Large
C. fluctuating	D. any of these

Q38.
The positive sequence reactance per phase in ohms/km in 750 kV transmission line is

A. 0.272	B. 0.227
C. 0.722	D. None of these

Q39.
Which among these is/are the fundamental economical principles that influence/s the design of transmission lines?

A. Economic choice of conductor size.	B. Economic choice of transmission voltage
C. Both (A) and (B)	D. Economic choice of transmission line length.

Q40.
The measurement of electrostatic field of an e.h.v. line is done by

A. Dipole	B. Spherical Dipole
C. Parallel plate	D. All of the above

Q41.
If the height of the transmission tower is decreased, the capacitance of the line will

A. Increase	B. Decrease
C. Remain same	D. Decrease exponentially

Q42.
As the transmission voltage increases the percentage resistance drop

A. Increases	B. Decreases
C. Will not change	D. Will increase in random manner

Q43.
In general method of Laplace transform the series and shunt impedance operator per unit length of line is

A. $z(s) = r + l(s)$	B. $y(s) = g + c(s)$
C. Both A & B	D. None of the above

Q44.
For the same voltage boost, the reactive power capacity is more for a

A. Shunt capacitor	B. Series capacitors
C. It is same for both series and shunt	D. None of these

Q45. If the height of the transmission tower is decreased, the inductance of the line will	
A. Increase	B. Decrease
C. Remain same	D. Increase exponentially

Q46. Second mode of propagation is called as	
A. Line to ground	B. Phase to phase
C. Homopolar	D. Inter-phase

Q47. By increasing potential of a conductor	
A. Its potential gradient increase	B. Insulation required is less
C. Corona loss is reduced	D. Potential between conductor and ground decreases

Q48. The conductor used in EHV transmission in recent development is	
A. ACSR	B. ACAR
C. AAAC	D. All of the above

Q49. Switching over-voltages are more hazardous than lightning surges in case of	
A. Low voltage systems	B. 11 kV systems
C. Unbalanced systems	D. EHV and UHV systems

Q50. The power loss is important for the design of	
A. Generator	B. Motor
C. Feeder	D. Transmission line