

## HAL TECHNICAL PAPER NOV 2006

- 1) What is the distance between the EHV lines?  
a)8m b)11m c)4m d)14m
- 2) At present how many HVDC lines are there in india?  
a)none b)one c)two d)more than two
- 3) Where is the nuclear located in following places?  
ans: i dont remember the answers, but one of them is thalcher(orissa)
- 4) What is the approximate peak overshoot for a unity feedback system with damping factor 0.6?  
a)10% b)5% c)15% d)20%
- 5) What is the distance between the EHV lines and earth?  
a)8m b)11m c)18m d)15m
- 6) On no load in EHV lines what is the relation between receiving and sending end voltage?  
ans: receiving end voltage > sending end voltage
- 7) What is the surge impedance loading of 400kv line?  
ans:  $400^2/400\text{ohms} = 400\text{watts}$
- 8) similar question with surge impedance given as 160 ohms  
ans: 1000watts
- 9) If both the junctions of transistor are forward biased, in wat region transistor works  
ans: saturation region
- 10) Where is the hydel power plant located in following places?  
ans: I dont remember the places
- 11) self GMD is used in the calculation of \_\_\_\_\_  
a) inductance only  
b) inductance and capacitance  
c) capacitance only  
d) none
- 12) What is the GMD if the distance between the lines are 6m,6m,12m?  
ans: 7.058m( approx)
- 13) Zero sequence currents doesn't exist in the following fault  
a) L-G  
b) L-L  
c) L-L-G  
d) L-L-L-G  
Ans: d
- 14) To avoid arcing connect suitable value of \_\_\_\_\_ in earthing.  
a) capacitance  
b) indunctance  
c) resistance  
d) susceptance
- 15) There are two to three questions based on Laplace and Inverse Laplace transforms

- 16) In the following type of conductors the corona is minimum
- a) circular
  - b) stranded
  - c) helical
  - d) rectangular
- ans: c
- 17) When do two wattmeters show same value of opposite readings in two wattmeter method
- a) 300 lag
  - b) 600 lag
  - c) between 600 and 900 lag
  - d) zpf lag
- ans: d
- 18) Schering bridge is used to measure
- a) frequency
  - b) inductance
  - c) capacitance
  - d) mutual inductance
- ans: c
- 19) What is the value of resistance when both length and diameter of the wire are doubled?
- ans: halved
- 20) There is one question asked on Euler's formula..
- 21) What is the Laplace transform of unit ramp signal?
- ans:  $1/s^2$
- 22) What happens to the value of inductance when self GMD is doubled?
- 23) At what frequency is corona loss more?
- a) 50Hz
  - b) 60Hz
  - c)
  - d)
- 24) What is the largest rating of alternator manufactured in India?
- a) 1000MW
  - b) 500MW
  - c) 1200MW
  - d) 250MW
- ans: b
- 25) The response of an RLC circuit for impulse input?
- a) exponentially raising
  - b) sinusoidal
  - c) exponential falling
  - d) parabolic
- ans: c
- 26) What is the easier method for finding no. of poles in the right half of s-plane?
- a) Nyquist plot
  - b) R-H criterion

- c) Root-Locus method
  - d) Polar plot
- ans: b

27) How many no of poles located in the right half of s-plane for the characteristic equation...

28) Burden of current transformers is measured in..

- a) Watts
- b) Volt Amperes
- c) Ampere Hours
- d) Joules

29) What is the gate used to get high output when all the inputs are low?

- a) NOR
- b) NAND
- c) Ex-OR
- d) Ex-NOR

ans: b

30) Large no of thyristors are used in HVDC transmission to improve\_\_\_\_\_

- a) current rating
- b) voltage rating
- c) Thyristers are available at high ratings
- d)

31) What is the line current of a circuit when the current transformer of 1000:5 rating measures 4Amperes?

ans: 800A

32) If the time delay of relay with TMS setting 0.1 is 10 sec, then what is the time delay when the TMS setting is changed to 0.5

33) How many no of flip-flops are required to get 16 bit counter?

34) \_\_\_\_\_ is connected to reduce frequency errors in ammeter.

- a) shunt capacitor
- b) series inductance
- c) shunt inductance
- d)

35) What is the value of ripple factor in Half Wave Rectifier?

- a) 1.11
- b) 0.8
- c) 1.21
- d)

36) The principle used in megger?

- a) electrostatic effect
- b) magnetic effect
- c) Induction effect
- d)

37) In electrodynamic type wattmeter the error is due to..

- a) pressure coil inductance
- b) pressure coil resistance
- c)
- d)

38) In the following locations where is hydal power plant is not located?

ans: i dont remember the places

39) In distribution lines \_\_\_\_\_

- a)  $X/R < 0.1$
- b)  $X/R > 10$
- c)  $X/R > 1$
- d)  $X/R < 0.01$

40) In EHV lines \_\_\_\_\_

- a)  $X/R = 10$
- b)  $X/R = 100$
- c)
- d)

41) What is the speed of 2 pole alternator at 50Hz frequency?

ans: 3000rpm

42) What is the equivalent decimal no of  $(624)_8$

43) What is the binary equivalent of 6.25

44) What is the value of  $A+AB+B'$  ( B bar)

ans: 1

45) What are the avg and rms values of full wave rectifier

ans:  $2V_m/\pi$ ,  $V_m/2^{1/2}$

46) There is one question based on rank of matrix

47) What is the equivalent of  $\cos(\omega t+18.750)$

a)  $\sin(\omega t+71.250)$

b)  $\sin(\omega t-71.250)$

c)  $\sin(\omega t+18.250)$

d)  $\sin(\omega t-18.250)$

48) The three harmonics will be in phase with each other? \_\_\_\_\_

a) 3,5,15

b) 2,4,6

c)

d)

ans: a

49) The line current will be equal to phase current in \_\_\_\_\_

ans: delta connection

50) In windmills the frequent problems occur in \_\_\_\_\_

a) mechanical system

b) blades

- c) electrodynamic system
- d) electric system

51) The machine used in windmills is \_\_\_\_\_

- a) alternator
- b) induction generator
- c)
- d)

ans: b

52) Insulators in EHV lines are designed based on \_\_\_\_\_

- a) switching voltages
- b) peak voltages
- c) corona
- d) lightning voltages

ans: a

53) The value of restriking voltage depends on \_\_\_\_\_

- a) inductance of line
- b) capacitance of line
- c) both
- d) none