PARLIAMENT OF INDIA
(JOINT RECRUITMENT CELL)

EXAMINATION FOR THE POST OF TECHNICAL ASSISTANT IN LOK SABHA SECRETARIAT FOR PARLIAMENT MUSEUM

23rd NOVEMBER, 2011

EXHIBITS IN PARLIAMENT MUSEUM AND PROFICIENCY IN PROJECTORS AND OTHER ELECTONIC EQUIPMENT

INSTRUCTIONS : (i) Write your Roll No. at the appropriate column` on the answer sheet. (ii) Put `X' mark only in the correct Box like this {X}. No marks will be given for responses outside the Box. Use blue or black pen only to mark your response. (iii) In case you want to change your response to any question, fully blacken the first response like this ■ and {X} mark in the correct Box.

Time : 40 Minutes **Marks : 60**

PART (A) : EXHIBITS IN PARLIAMENT MUSEUM

1) In which exhibit area in the Parliament Museum 'Virtual Reality' is shown?
   a) Freedom Movement b) Dandi March
   c) Transfer of Power d) Central Hall of Parliament

2) In which exhibit area in the Parliament Museum 'Animatronics' is shown?
   a) Freedom Movement b) Dandi March
   c) Transfer of Power d) Central Hall of Parliament

3) In which exhibit area in the Parliament Museum, computer multi-media is *not* employed?
   a) Three Organs of State b) Transfer of Power
   c) Lok Sabha d) Rajya Sabha

4) Which make of computers has mostly been used in the Parliament Museum?
   a) IBM India b) Hewlett Packard
   c) HCL Infosystems d) Dell India

5) What kind of projection system is used in the multi-screen projection on 'Transfer of Power' in the Parliament Museum?
   a) LCD projection b) Plasma Screen
   c) TFT Screen d) none of these

6) The brightness of a projector is expressed in terms of
   a) Wattage b) ANSI lumen
   c) candle power d) foot candles

7) The lamp life in a typical LCD projector is of the order of
   a) 200 hours b) 1000 hrs
   c) 2000 hours d) 10,000 hours

8) What is the Aspect Ratio in the projection system in Transfer of Power?
   a) 4:3 b) 5:3 c) 5:4 d) 16:9

9) The Screen Size of a projection system means
   a) width of the screen b) height of the screen
   c) diagonal of the screen d) area of the screen

10) Write the full expression of LCD in
   a) Lowest Common Denominator
   b) Linear Capacitor Display
   c) Liquid Crystal Detector
   d) Liquid Crystal Display

11) Write the full expression of TFT
   a) True Flat Terminal b) Thin Film Transistor
   c) Thin Flat Terminal d) Thin Flat transistor

12) What is the most common video compatibility in India?
   a) PAL b) NTSC c) SECAM d) RAM

13) Which number corresponds to a typical timer?
   a) 333 b) 555 c) 777 d) 999

14) Which drive is no longer used in computers today?
   a) DVD b) CD c) HDD d) Floppy

15) Which operating system of the followings is the latest in the market?
   a) Windows XP b) Windows Vista
   c) Windows 7 d) Windows 9

16) The processor speed in desktop computer today could be of the order of
   a) 3.2 GHz b) 2.0 GHz c) 1.6 GHz d) 1.0 GHz

17) HDD capacity in common desktop computer today could be of the order of
   a) 40GB b)80Gb c) 160GB d) 250GB

18) Which colour signifies 5 in the colour code of carbon resistors?
   a) Brown b) Yellow c) Green d) Blue

19) In which type of capacitors, polarity is important?
   a) paper Capacitor b) mica Capacitor
   c) electrolytic Capacitor d) ceramic capacitor

20) Which power of soldering iron will you use for connecting in PCB?
   a) 25 watt b) 65 watt c) 100 watt d) 150 watt

PART (B) – Proficiency in Projectors and other Electronic Equip

21. With n nodes and b branches a network will have –

a.) (b + n) links
b.) b – n + 1 links
c.) b – n – 1 links
d.) b + n + 1 links

22. A network contains linear resistors and ideal voltage sources. If values of all the resistors are doubled, then voltage across each resistor is

a) Halved
b) Doubled
c) Increase by 4 times
d) Remains the same

23. Maxwell's loop current method of solving electrical networks –

a) Uses branch currents
b) Utilizes Kirchhoff's voltage law
c) Is confined to single-loop circuits
d) Is a network reduction method

24. A yagi antenna has a driven antenna-

a) Only
b) With a reflector
C) With one or more directors
d) With a reflector and one or more directors

25. In a JFET gates are always –

a) forward biased
b) Reverse biased
c) Unbiased
d) None

26. Schering bridge is used to measure

a) frequency
b) inductance
c) capacitance
d) mutual inductance

27. 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

28. A source of angular frequency 1 rad/sec and source impedance consisting of 1 ohm resistance with 1H inductance. The load that will obtain maximum power transfer is

a) 1ohm resistance
b) 1ohm resistance in parallel with 1H inductance
c) 1ohm resistance in series with 1 F capacitance
d) 1ohm resistance in parallel with 1 F capacitance.

29. Super position theorem is NOT applicable to networks containing

a) Non linear elements
b) Dependant voltage sources
c) Dependant current sources
d) Transformers

30. Electrical contact materials used in switches, brushes and relays must posse
a) High thermal conductivity and high melting point
b) Low thermal conductivity and low melting point
c) High thermal conductivity and low melting point.
d) Low thermal conductivity and high melting point.

31. Thermal Run away is not possible in FET because of the absence of
a) minority careers
b) Transconductance
c) Channel
d) none

32. When a signal of 10 mV at 75 MHz is to be measured then which of the following instrument can be used -
a) VTVM
b) Cathode ray oscilloscope
c) Moving iron voltmeter
d) Digital multimeter

33. As the drain voltage is increased for a junction FET in the pinch off region then the drain current –
a) Becomes zero
b) Abruptly decreases
c) Abruptly increases
d) Remains constant

34. One of the following, which is not a transducer in the true sense, is –
a) Thermocouple
b) Piezoelectric pick up
c) Photo-Voltaic cell
d) LCD

35. A lag compensator is basically a –
a) high pass filter
b) band pass filter
c) low pass filter
d) band elimination filter

36. The storage and retrieval of data on stacks should follow sequence-
a) last in first out
b) first in first out
c) random in random out
d) none

37. Universal logic gate is
a) AND
b) OR
c) NAND
d) X-OR

38. Major advantage of TWT over a klystron lies in its –
a) higher bandwidth
b) higher output
c) higher frequency
d) higher gain

39. Common Base Configuration has
a) Low input resistance and low output resistance
b) Low input resistance and high output resistance
c) High input resistance and low output resistance
d) High input resistance and high output resistance

40.The popular IC 741 is

a) Voltage regulator
b) Comparator
c) Operational amplifier
d) Timer

41. If Modulation index of an AM system is varied from 0 to 1, then transmitted power

a) Halves
b)doubles
c) remains the same
d) increased by 50%

42. The modulation scheme where each bit is represented by phase shifts of carrier is

a) ASK
b) PSK
c) FSK
d) PPM

43. Which of the following was used for digital transmission?

a) PAM
b) PPM
c) PWM
d) PCM

44. Modulation system employed in Video broad cast of TV is

a) AM
b) PM
c) FM
d) PCM

45. Modulation system employed in Audio broad cast of TV is

a) AM
b) PM
c) FM
d) PCM

46. Human eye is most sensitive to?

a) Blue
b) Green
c) Red
d) Violet

47. The forbidden energy gap of semiconductors is in the order of

a) 1MeV
b) 1eV
c) 10eV
d) 10MeV

48. Ripple frequency of a bridge rectifier operated in 10V,50Hz line is

a) 50Hz
b) 100Hz
c)150Hz
d)25Hz

49.With introduction of –ve feed back, the Gain – Bandwidth product of an amplifier

a) Becomes infinity
b) decreases
c) increases
d) Remains constant

50. RC Coupled amplifier with no Emitter bypass capacitor is an example of

a)Voltage series feedback
b)Voltage shunt feedback
c)Current series feedback
d) Current shunt feedback

51. The unit for thermal resistance of a semiconductor device is

a) Ohms
b) ohms/degree Celsius
c) Degree Celsius/Ohm
d) degree Celsius/Watt

52. SCR turns OFF conducting state to blocking state on

a)Reducing gate current
b)Reversing gate voltage
c) Reducing anode current below holding current value
d) Applying AC to gate

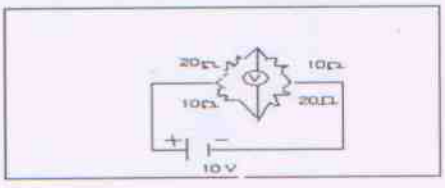
53. A diaphragm, has a natural frequency of 30 KHz. If both is diameter and thickness are halved, then the natural frequency will be

a) 15 kHz
b) 60 kHz
c) 120 kHz
d) 240 kHz

54. Insertion of a dielectric material in between the plates of an air capacitor.

a) Increases the capacitance
b) Decreases the capacitance
c) Has no effect whatsoever
d) Increases the breakdown

55. The reading of high impedance voltmeter V in the bridge circuit shown in the given figure is



a) Zero
b) 3.33 V
c)4.20 V
d) 6.66 V

56. An op-amp has open-loop gain 100000 and the open-loop upper cut-off frequency is 20Hz. The unity-gain frequency of the op-amp is :

a) 2 MHz
b) 1 MHz
c) 3kHz
d) 2kHz

57. The junction capacitance of a p – n junction depends on .

a) Doping concentration only
b) Applied voltage only
c) Both doping concentration and applied voltage
d) Barrier potential only

58. Two pure specimen of a semiconductor material are taken. One is doped with 10^{18} cm^{-3} number of donors and the other is doped with 10^{16} Cm^{-3} number of acceptors. The minority carrier density in the first specimen is 10^{7} cm^{-3}. What is the minority carrier density in the other specimen ?

a) 10^{16} cm^{-3}
b) 10^{27} cm^{-3}
c) 10^{18} cm^{-3}
d) 10^{9} cm^{-3}

59. The mobility of electrons in a semiconductor is defined as the

a) Diffusion velocity per unit electric field
b) Diffusion velocity per unit magnetic field
c) Drift velocity per unit magnetic field
d) Drift velocity per unit electric field

60. If a unit step current is passed through a capacitor what will be the voltage across the capacitor ?

a) 0
b) A step function
c) A ramp function
d) An impulse function