M. Tech. (Electric Power System)

1. Which of the following is the inverse of matrix $A = \begin{bmatrix} 3 & 0 \\ 1 & 2 \end{bmatrix}$? The transpose of the matrix of this matrix is represented as :

(A) $\begin{bmatrix} \frac{1}{3} & 0 \\ -\frac{1}{6} & \frac{1}{2} \end{bmatrix}$

(B) $\begin{bmatrix} 0 & \frac{1}{6} \\ -\frac{1}{6} & \frac{1}{2} \end{bmatrix}$

(C) $\begin{bmatrix} \frac{1}{3} & -\frac{1}{6} \\ \frac{1}{3} & \frac{1}{2} \end{bmatrix}$

(D) $\begin{bmatrix} \frac{1}{3} & 0 \\ 0 & \frac{1}{2} \end{bmatrix}$

2. If Rank (A) = 2 and Rank (B) = 3, then Rank (AB) is :

(A) 6

(B) 5

(C) 3

(D) Data inadequate

3. Find the minimum value of function $f(x) = x^2 - x + 2$:

(A) $\frac{1}{2}$ (B) $\frac{3}{4}$

(C) $\frac{7}{4}$ (D) $\frac{1}{4}$

4. Value of the definite integral :

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{\sin 2x}{1+\cos x}\, dx$$

is :

(A) $-2 \ln 2$ (B) 2

(C) 0 (D) $(\ln 2)^2$

5. The solution of differential equation $dy = \sqrt{1-y^2}\, dx$ is :

(A) $y = \sin x + c$ (B) $y = \sin(x + c)$

(C) $\sin^{-1}(y + x) = c$ (D) $\sin^{-1}(y + c) = x$

6. The solution of $\frac{dx}{dt} = 3x + 8$ will be :

(A) $x = \frac{1}{3}e^{(t+c)} - \frac{3}{8}$ (B) $x = \frac{1}{3}e^{3(t+c)} - \frac{8}{3}$

(C) $x = \frac{1}{3}e^{(t+c)} + \frac{3}{8}$ (D) $x = \frac{1}{3}e^{(t+c)} + \frac{8}{3}$

7. If $u = x^2 - y^2$, then the conjugate harmonic function is :

(A) $2xy$ (B) $x^2 + y^2$

(C) $y^2 - x^2$ (D) $-x^2 - y^2$

8. The residue of function $f(z) = \frac{1}{(z+2)^2 (z-2)^2}$ at $z = 2$ is :

(A) $-\frac{1}{32}$ (B) $-\frac{1}{16}$

(C) $\frac{1}{16}$ (D) $\frac{1}{32}$

9. Runs scored by batsman in 5 one-day matches are 50, 70, 82, 93 and 20. The standard deviation is :

(A) 25.79 (B) 25.49

(C) 25.29 (D) 25.69

10. If 'm' is the mean of Poisson Distribution, the P(0) is given by :

(A) e^m (B) e^{-m}

(C) e (D) m^{-e}

11. Consider a continuous-time system with input $x(t)$ and output $y(t)$ is given by $(t) = x(t) \cos(t)$. This system is :

(A) Linear and time-invariant

(B) Non-linear and time-invariant

(C) Linear and time-varying

(D) Non-linear and time-varying

12. The z-transform of a signal is given by $X(z)=\frac{1}{4}\frac{z^{-1}\left(1-z^{-4}\right)}{\left(1-z^{-1}\right)^2}$, its final value is :

(A) $\frac{1}{4}$ (B) Zero

(C) 1 (D) Infinity

13. Consider a signal defined by $x(t)=\begin{cases} e^{j10t} & \text{for} \left|t\right| \leq 1 \\ 0 & \text{for} \left|t\right| > 1 \end{cases}$. Its Fourier transform is :

(A) $\frac{2\sin(\omega-10)}{\omega-10}$ (B) $\frac{2e^{j10}\sin(\omega-10)}{\omega-10}$

(C) $\frac{2\sin\omega}{\omega-10}$ (D) $\frac{e^{j10\omega}2\sin\omega}{\omega}$

14. For a periodic signal $(t)=30\sin 100t+10\cos 300t+6\sin\left(500t+\frac{\pi}{4}\right)$, the fundamental frequency in rad/sec is :

(A) 1500 (B) 500

(C) 300 (D) 100

15. What is the Laplace transform of $v(t)=\sin(10t)u(t)$?

(A) $V(s)=\frac{10}{s^2+10}$ (B) $V(s)=\frac{1}{s^2+10}$

(C) $V(s)=\frac{1}{s^2+100}$ (D) $V(s)=\frac{10}{s^2+100}$

16. The ratio of Fourier transform of the output signal to the Fourier transform of the input signal is called :

(A) Transfer function (B) Hilbert transform

(C) Z-transform (D) None of these

17. An capacitor with zero initial condition at $t = 0^+$ acts as :

(A) Short circuit (B) Open circuit

(C) Current source (D) Voltage source

18. In order to find Z in Thevenin's theorem :

(A) All independent current sources are short circuited and all independent voltage sources are open circuited.

(B) All independent voltage sources are short circuited and all independent current sources are open circuited.

(C) All independent voltage and current sources are short circuited.

(D) All independent voltage and current sources are open circuited.

19. At a frequency less than the resonant frequency :

(A) series circuit is capacitive and parallel circuit is inductive.

(B) series circuit is inductive and parallel circuit is capacitive.

(C) both circuits are inductive.

(D) both circuits are capacitive.

20. A parallel R-L-C circuit has R = 10000 ohms, L = 10 mH, and C = 1 μF. The resonant frequency ω_0 (rad/sec) and Q factor are respectively given by :

(A) 10^4 and 200 (B) 10^2 and 1

(C) 10^4 and 100 (D) 10^2 and 100

21. Kirchhoff's voltage law applies to circuit with :

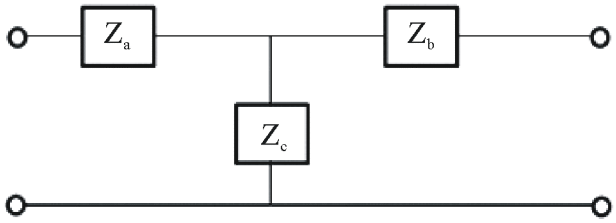
(A) Linear elements only

(B) Non-linear elements only

(C) Linear, non-linear, active and passive elements

(D) Linear, non-linear, active, passive, time varying as well as time invariant elements

22. The open-circuit impedance parameter z_{12} for the T-network shown below is :



(A) Z_a (B) Z_b

(C) Z_c (D) $Z_a + Z_b + Z_c$

23. The current flowing in series R-L circuit is $i(t) = 2 \sin 500t$ A. The applied voltage will be..... . Given R = 10 ohms, and L = 20 mH.

(A) $20 \sin 500t$ V

(B) $20 \cos 500t$ V

(C) $28.28 \sin (500t + 45°)$ V

(D) $30.5 \cos (500t + 30°)$ V

24. If there are 'b' branches and 'n' nodes, the number of KCL equations required will be :

(A) b (B) n

(C) $(n - 1)$ (D) $(b - n + 1)$

25. The transient currents are due to :

(A) Voltage applied in the circuit

(B) Resistance of the circuit

(C) Impedance of circuit

(D) Changes in stored energy in inductor and capacitor.

26. Three equal resistances are connected in delta. If this delta is converted into star :

(A) The resistances of star network will be lower than the resistances of delta network

(B) The resistances of star network will be larger than the resistances of delta network

(C) The resistances of both the networks will be equal

(D) None of the above

27. The mutual inductance between two closely coupled coil is 1 H. Now the turns of one coil is decreased to half and that of the other is doubled. The new value of mutual inductance would be :

(A) 2 H (B) 1 H

(C) $\frac{1}{2}$ H (D) $\frac{1}{4}$ H

28. The magnitude of statically induced e.m.f depends on :

(A) The magnitude of flux

(B) The rate of change of flux

(C) The resistance of the coil

(D) None of the above

29. The unit of time constant L/R is :

(A) seconds (B) henry/sec.

(C) ohms/sec. (D) volt/amp

30. The Gaussian surface is :

(A) Real boundary (B) Imaginary surface

(C) Tangential (D) Normal

31. When currents are moving in the same direction in two conductors, then the force will be :

(A) Attractive (B) Repulsive

(C) Retracting (D) Opposing

32. The work done by a charge of 10 μC with a potential 4.386 is (in μJ) :

(A) 32.86 (B) 43.86

(C) 54.68 (D) 65.68

33. Which of the following materials is considered as non-magnetic material ?

(A) Ferrimagnetic material

(B) Ferromagnetic material

(C) Anti-ferrimagnetic material

(D) Diamagnetic material

34. A coil of 360 turns is linked by a flux of 200 μWb. If the flux is reversed in 0.01 sec, then find the e.m.f induced in the coil :

(A) 7.2 V (B) 0.72 V

(C) 14.4 V (D) 144 V

35. The current drawn by armature of a DC motor is :

(A) V/R_a (B) E_b/R_a

(C) $(V - E_b)/R_a$ (D) $(E_b - V)/R_a$

36. A series motor is started without load. The effect is that :

(A) the torque increases rapidly

(B) the speed increases rapidly

(C) current drawn increases rapidly

(D) the back emf decreases

37. If the flux of a DC motor approaches zero, its speed will approach :

(A) zero

(B) infinity

(C) a stable value nearer to the rated speed

(D) None of the above

38. Interpoles are connected in series with the :

(A) Line (B) Armature winding

(C) Shunt field winding (D) Line and armature winding

39. The direction of rotation of a DC motor is reversed by :

(A) Adding resistance to the field circuit

(B) Reversing the supply connections

(C) Interchanging the armature and field connection

(D) Reversing armature connections

40. E.M.F of DC generator depends upon :

(A) number of poles (B) flux per pole

(C) number of conductors (D) All of these

41. In a transformer, the voltage per turn in primary and secondary remains :

(A) Always same

(B) Always in ratio of K

(C) Always different

(D) Sometimes same

42. Transformer cores are built up from laminations rather than from solid metal so that :

(A) Oil penetrates the core more easily

(B) Eddy current loss is reduced

(C) Less insulation is required for the windings

(D) Hysteresis loss is reduced

43. Short-circuit test in a transformer is used to determine :

(A) Iron loss at any load (B) Copper loss at any load

(C) Hysteresis loss (D) Eddy-current loss

44. Buchholz relay causes :

(A) Tripping for major fault and alarm for minor faults

(B) Alarm for major fault and tripping for minor faults

(C) Tripping for both major and minor faults

(D) Alarm for both major and minor faults

45. Two equal sized transformer A and B are connected in parallel. The impedance of A is more than the impedance of B. Then :

(A) both will share the load equally

(B) A will supply more load than B

(C) B will supply more load than A

(D) None of the above

46. Transformers are rated in :

(A) kilo-watts

(B) kilo-watt-hours

(C) kilo-volt-amperes

(D) kilo-volts

47. The leakage impedances of primary and secondary windings of a transformer are $(3 + j4)$ ohms and $(1 + j4)$ ohms respectively. It can be concluded that transformer has :

(A) Low voltage primary

(B) High voltage primary

(C) Low voltage secondary

(D) High voltage secondary

48. With the increase in supply frequency of a transformer, there is :

(A) Decrease in rating

(B) Increase in rating

(C) No change in rating

(D) None of the above

49. In a synchronous motor, minimum armature current occurs at :

(A) Zero power factor (B) Leading power factor

(C) Lagging power factor (D) Unity power factor

50. An overexcited synchronous motor operates at :

(A) Zero power factor (B) Lagging power factor

(C) Leading power factor (D) Unity power factor

51. To eliminate rth harmonic from the induced e.m.f in a phase of synchronous machine, the pitch of the coil must be :

(A) $(r - 1)/r$th fraction of full-pitch

(B) $(2r - 1)/2$th fraction of full-pitch

(C) $r\ (r + 1)$th fraction of full-pitch

(D) $2r\ (r + 1)$th fraction of full-pitch

52. If the rotor terminals of a 3-phase slip-ring induction motor are not short-circuited and the supply is given to the stator, the motor will :

(A) not start (B) start running

(C) run at high speed (D) run at low speed

53. An increase in the value of air gap flux density in an induction motor :

(A) increases iron-loss

(B) increaes efficiency

(C) decreases efficiency

(D) Both (A) and (C) are correct

54. If a 3-phase, 4-pole, 50 Hz induction motor runs at a speed of 1440 r.p.m., then the slip is :

(A) 0.01 (B) 0.03

(C) 0.04 (D) 0.05

55. A Kaplan turbine is :

(A) Inward flow, impulse turbine

(B) Outward flow, reaction turbine

(C) A high head mixed flow turbine

(D) Low head axial flow turbine

56. For self excitation of induction generator, it is desirable economically to connect capacitors in :

(A) star connection (B) delta connection

(C) both star and delta connection (D) None of these

57. During load shedding :

(A) System voltage is reduced

(B) System frequency is reduced

(C) Some loads are switched off

(D) System power factor is changed

58. The transmission lines which feed different substations represent :

(A) Primary transmission (B) Secondary transmission

(C) Primary distribution (D) Secondary distribution

59. The corona effect can be minimised by increasing :

(A) the length of the conductors

(B) spacing between conductors

(C) diameter of the conductors

(D) both spacing between conductors and diameter of the conductors

60. In comparison with the steady state stability limit, transient stability limit is :

(A) Always less (B) Always more

(C) Sometimes less (D) Same

61. If the supply frequency increases, the skin effect is :

(A) Decreased (B) Increased

(C) Remains same (D) None of these

62. If sag in an overhead line increases, tension in the line :

(A) Increases (B) Decreases

(C) Remains same (D) None of these

63. Sparking occurs when a load is switched off, because the circuit has high :

(A) Inductance (B) Resistance

(C) Capacitance (D) Magnetism

64. Load flow study is used for :

(A) Fault calculations (B) Stability studies

(C) System planning (D) All of these

65. Distance relay operation is dependent upon :

(A) Ratio of current to current

(B) Ratio of voltage to current

(C) Ratio of voltage to voltage

(D) None of the above

66. The positive sequence reactance will be equal to negative sequence reactance in case of :

(A) Transformer (B) Transmission line

(C) Synchronous generator (D) Induction generator

67. The damping ratio of the characteristic equation $s^2 + 2s + 8 = 0$, is :

(A) 0.353 (B) 0.453

(C) 0.5 (D) $\sqrt{2}$

68. The transfer function of an integral controller is of the type :

(A) K_C (B) T_S

(C) $\frac{1}{T_S}$ (D) $\frac{1}{T_S + 1}$

69. In Routh-Hurwitz criterion, if the first element in any one row of Routh's tabulation is zero, then :

(A) The elements in the next row become infinite

(B) Routh's test cannot be applied

(C) The polynominal has to be divided by $(s + a)$, where a is a positive real number

(D) The system is highly unstable

70. Which of the following techniques is not applicable to non-linear system ?

(A) Quasi linearization

(B) Functional analysis

(C) Phase-plane representation

(D) Nyquist criterion

71. The polar plot of a closed-loop system with a transfer function $\frac{G}{1+GH}$ is drawn for :

(A) $G(s)$ (B) $1 + GH$

(C) $G(s)H(s)$ (D) $\frac{G}{1+GH}$

72. The root loci of a systems has three asymptotes. The system can have :

(A) Three poles

(B) Five poles and two zeros

(C) Four poles and one zero

(D) All of the above

73. Excessive noise in control system can cause :

(A) reduction in band-width

(B) reduction in gain

(C) saturation in amplifying stages

(D) oscillations

74. The number of operational amplifiers required to design an electronic PID-controller is :

(A) 1 (B) 2

(C) 3 (D) 4

75. The damping torque can be produced by :

(A) Eddy currents

(B) Gravity control

(C) Electrostatically

(D) Thermally

76. To increase the range of an ammeter :

(A) a low resistance is connected in series

(B) a low resistance is connected in parallel

(C) a high resistance is connected in series

(D) a high resistance is connected in parallel

77. Electrostatic instruments are suitable for measurement of :

(A) AC and DC voltages (B) AC voltage and current

(C) DC voltage and current (D) AC voltage only

78. In a moving iron meter, the deflecting torque is proportional to :

(A) Square of current through the coil

(B) Current through the coil

(C) Sine of the measurand

(D) Square-root of measurand

79. A galvanometer has :

(A) Air-friction damping

(B) Fluid friction damping

(C) Spring coil damping

(D) Eddy current damping

80. The static error band of an instrument implies :

(A) The accuracy of the instrument

(B) The error produced when the pen is stopped at some deflection

(C) The irrepeatibility of the instrument

(D) The error introduced in low varying inputs

81. Inductance is measured in terms of capacitance and resistance by :

(A) Schering bridge

(B) Anderson bridge

(C) Maxwell-Wien bridge

(D) Wien bridge

82. The resistance of a shunt for a precision grade ammeter can be measured by :

(A) Kelvin's double-bridge

(B) De Sauty's bridge

(C) Schering's bridge

(D) Maxwell's bridge

83. The accuracy of a digital voltmeter is specified as :

(A) Percentage of the actual reading

(B) Percentage of the full scale reading

(C) Number of list significant digits

(D) All of the above

84. AC/DC VTVM is a :

(A) Moving coil instrument

(B) Moving iron instrument

(C) Both moving coil and moving iron instrument

(D) Dynamometer type instrument

85. When a PNP transistor is properly biased, the holes from the emitter :

(A) Defuse through the base into the collector region

(B) Recombine with the electrons in the base

(C) Recombine with the electrons in the emitter itself

(D) None of the above

86. A circuit in which the output voltage remains constant irrespective of the value of load resistance, uses :

(A) Silicon diode (B) Zener diode

(C) SCR (D) All of these

87. Current stability of a common collector amplifier can be increased by :

(A) Reducing both emitter and base resistances

(B) Increasing both emitter and base resistances

(C) Reducing emitter resistance and increasing base resistances

(D) Increasing emitter resistance and decreasing base resistances

88. In an ideal balanced differential amplifier, the common-mode gain is :

(A) Double of that of single-ended differential amplifier

(B) Half of that of single-ended differential amplifier

(C) Very high

(D) Zero

89. The high and low frequency response of an RC coupled circuit can be increased by :

(A) Increasing load resistance

(B) Decreasing load resistance

(C) Increasing coupling capacitor

(D) Decreasing coupling capacitor

90. 10 in BCD code is represented as :

(A) 10100 (B) 1100

(C) 010111 (D) None of these

91. Surge current rating of an SCR specifies the maximum :

(A) Repetitive current with sine wave

(B) Non-repetitive current with rectangular wave

(C) Non-repetitive current with sine wave

(D) Repetitive current with triangular wave

92. For an SCR, *dv*/*dt* protection is achieved through the use of :

(A) RL in series with SCR

(B) RL across SCR

(C) L in series with SCR

(D) L across SCR

93. For discontinuous load current and extinction and $\beta > \pi$, in a single-phase full converter each SCR conducts for :

(A) α (B) $\beta - \alpha$

(C) β (D) $\alpha + \beta$

94. In a 3-phase full-wave diode rectifier, if V_m is the maximum value of line voltage, then each diode is subjected to a peak inverse voltage of :

(A) V_m

(B) $\sqrt{3}\, V_m$

(C) $2 V_m$

(D) $3 V_m$

95. For type-A chopper, V_s is the source voltage, R is the load resistance and α is the duty cycle. The average output voltage for this chopper is :

(A) $\alpha\ V_s$

(B) $(1 - \alpha)\ V_s$

(C) V_s/α

(D) $V_s/(1 - \alpha)$

96. A three-phase to single-phase cycloconverter consists of positive and negative group of converters, in this device, one of the two component converters would operate as a :

(A) Rectifier if the output voltage V_o and output current I_o have the same polarity

(B) Inverter if V_o and I_o have the same polarity

(C) Rectifier if V_o and I_o are of opposite polarity

(D) Inverter if V_o and I_o are of opposite polarity

97. In a 3-phase full converter, if load current is I and ripple free, the average thyristor current is :

(A) 1/2 I (B) 1/3 I

(C) 1/4 I (D) I

98. In a constant source inverter, if frequency of output voltage is f Hz, then frequency of voltage input to constant source inverter is :

(A) f (B) $2f$

(C) $3f$ (D) $4f$

99. In DC choppers, per unit ripple is maximum when duty cycle α is :

(A) 0.2 (B) 0.3

(C) 0.5 (D) 0.7

100. In a single-phase semiconverter bridge, the average output voltage is given by :

(A) $\frac{1}{\pi}\int_{\alpha}^{\pi} V_m \cos\theta . d\theta$ (B) $\frac{1}{\pi}\int_{\alpha-\frac{\pi}{2}}^{\pi} V_m \cos\theta . d\theta$

(C) $\frac{1}{\pi}\int_{\alpha-\left(\frac{\pi}{2}\right)}^{\alpha+\left(\frac{\pi}{2}\right)} V_m \cos\theta . d\theta$ (D) $\frac{1}{\pi}\int_{\left(\frac{\pi}{2}\right)-\alpha}^{\left(\frac{\pi}{2}\right)+\alpha} V_m \cos\theta . d\theta$

GENERAL APTITUDE

101. Find the missing numbers from the given responses :

38	54	61	79
21	?	12	24
19	09	14	?

(A) 18, 46

(B) 28, 51

(C) 42, 62

(D) 18, 44

102. Select the related words from the given alternatives.

..... : Zenith :: Fear : Composure

(A) Apex

(B) Nadir

(C) Heights

(D) Foot-note

103. Ritesh starts from P and walks 2 km east up to Q and turns southwards and walks 1 km up to R. At R he turns towards east and walks 2 km up to S. He then turns northwards and walks 4 km to U. How far is he from his starting point ?

(A) 3 km (B) 4 km

(C) 5 km (D) 6 km

104. Complete the series :

15 16 ? 29 45

(A) 17

(B) 18

(C) 19

(D) 20

105. **Direction :** In this question some statements are followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows/follow from the given statements, disregarding commonly known facts.

Statements :

All bottles are jugs.

All pans are jugs.

Some jugs are not mugs.

Conclusions :

I. Some bottles are not pans.

II. Some mugs may not be jugs.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Neither conclusion I nor conclusion II follows

(D) Both the conclusions follow

106. Direction : Read the following informations carefully and answer the question given below :

In a certain code language,

'lavish lifestyle high desires' is coded as "@16f $36i @9d $16g"

'humanity seldom exhibit mercy' is coded as '@25h #16f @16g $16e"

'opinion matters heart felt' is coded as "#9g $25g %9e $9d"

'push yourself achieve goals' is coded as "&9d $25h $9g %9e"

Find the code for "efficient worker" ?

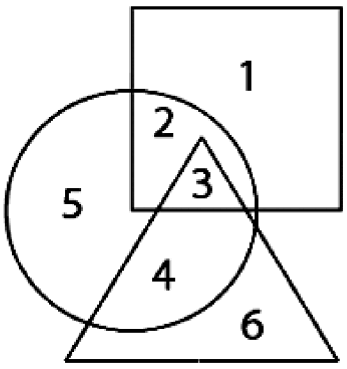
(A) $25i %16f

(B) $25i $16f

(C) @25i $16f

(D) $25i #16f

107. Which of the following numbers is present only in circle and the triangle ?



(A) 5 (B) 3

(C) 4 (D) 6

108. Direction : Read the following information carefully and answer the question given below :

8 persons from A to H sit around a square table such that 2 persons sit in the middle of each of the sides. The persons sitting on one side of the table face the persons sitting exactly opposite to them on the opposite side of table.

A sits on the immediate right of E. G faces the one who is second to the left of B. 3 persons sit between A and G. Two persons sit between F and D (when counted from one side only), who is adjacent to E. Only one person sits between G and C (when counted from one side only). A is not adjacent to F.

Who among the following sits second to the right of the one who faces E ?

(A) C (B) D

(C) F (D) Either C or D

109. Direction : Study the question carefully and choose the right option :

1. Windows 2. Walls 3. Floor 4. Foundation 5. Roof 6. Room

(A) 4, 1, 5, 6, 2, 3 (B) 4, 5, 3, 2, 1, 6

(C) 4, 3, 5, 6, 2, 1 (D) 4, 2, 1, 5, 3, 6

110. Direction : Study the following information carefully and answer the question given below :

There are two couples in a family. K has two children. M is wife of O, who is brother of B. F is daughter of K. U is sister of S, who is son of O. T is son of B, who is a male.

How is M related to K ?

(A) Sister (B) Sister in law

(C) Brother (D) Can't be determined

GENERAL ENGLISH

111. Fill the blanks with correct phrasal verb :

I.....Sumedha in town yesterday but she.....me.

(A) was seeing, didn't see

(B) saw, didn't see

(C) met, didn't see

(D) None of the above

112. The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer :

1. In the era of smart world, however, 'Universal Basic Income' is an ineffective instrument which cannot address the potential breakdown of the social contract when large swathes of the population would effectively be unemployed.
2. In the era of industrial revolution, the abolition of child labour, poor laws and the growth of trade unions helped families cope with the pressures of mechanized work.
3. Growing inequality could be matched by a creeping authoritarianism that is bolstered by technology that is increasingly able to peer into the deepest vestiges of our lives.
4. New institutions emerge which recognize ways in which workers could contribute to and benefit by economic growth when, rather than if, their jobs are automated.

(A) 1 2 3 4 (B) 2 3 1 4

(C) 3 2 4 1 (D) 2 4 1 3

113. Fill in the blank :

Only the blood stained road was a witness.....his assassination.

(A) of (B) at

(C) on (D) to

114. **Direction :** The given sentence has been broken up into four different parts. The error, if any, will be in any one part of the sentence. Select the option which contains the part of the sentence which has an error (spelling, grammatical or contextual) :

At my arrival (A)/in Delhi (B)/I went straight (C)/to the nearest hospital. (D)/

(A) At my arrival

(B) in Delhi

(C) I went straight

(D) to the nearest hospital

115. **Direction :** This question has two blanks, each blank indicating thatsomething has been omitted. Choose the set of words for each blank that best fits in the context of the sentence :

Rapid urbanization and rising.....in rainfall patterns make it.....that we transparently manage water resources nationally.

(A) variability, imperative

(B) assurance, necessary

(C) fluctuations, inefficient

(D) uncertainty, indifferent

116. Find the correctly spelt word :

(A) Perseverance (B) Preservarance

(C) Perseverence (D) Preserverence

117. **Direction :** Identify the words that are contextually similar to the phrase given in bold and mark that as your answer. The options do not need to be correct grammatically :

Being a student with a technological background, the concepts of balance of payments, macro economics, statement of loss and profit, liability and assets are **all Greek to me**.

(A) Complex (B) Alienated

(C) Different (D) Extreme

118. Out of the four alternatives choose the one which can be substituted for the given words/sentence in the question :

One who dabbles in fine arts for the love of it and not for monetary gains.

(A) Connoisseur (B) Amateur

(C) Professional (D) Dilettante

119. Find the synonym of **Licentious** :

(A) Immoral (B) Intellectual

(C) Moral (D) Without license

120. Find the antonym of **Defunct** :

(A) Absurd (B) Pliant

(C) Live (D) Virulent