HPSC
Asst. Director
Previous Year Paper
15 Sept, 2024

9MS/ VE

Please read the instructions given below carefully and follow them strictly.

Number of Pages in Booklet: **36**

Number of Questions in Booklet : **100**

Time : 2.00 Hours

Maximum Marks: **100**

Master Set

परीक्षण पुस्तिका संख्या / Test Booklet Series

Do not open this test booklet until you are told to do so.

INSTRUCTIONS

1. Immediately After The Commencement of The Examination, You Should Check That This Test Booklet Does Not Have Any Unprinted or Torn or Missing Pages or Items, Etc. If So, Get It Replaced By A Complete Test Booklet.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number, Test Booklet Series Code (A), (B), (C) or (D) and Question Booklet Number carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the OMR Answer sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided below. DO NOT write anything else on the Test Booklet.

4. This Question Booklet contains 100 items (questions). Each item is printed in English and shall have five options ((A), (B), (C), (D) and (E)). If a candidate is attempting a question, he has to darken most appropriate circle from (A), (B), (C) OR (D). However if you are not attempting a question then you have to darken the circle (E)'. If none of the five circle is darkened, one-fourth (0.25) marks shall be deducted.
5. All questions are compulsory. Each question carry one mark. For each wrong Answer, one fourth (0.25) mark shall be deducted.
6. You have to mark all your responses ONLY on the separate OMR Answer Sheet provided. See directions in the OMR Answer Sheet. Use only BLUE/BLACK Ball Point Pen to answer in OMR Answer Sheet.
7. Before you proceed to mark in the OMR answer sheet the response to various items in the test booklet, you have to fill in some particulars in the OMR answer sheet as per instructions mentioned on the OMR answer sheet.
8. At the end of the examination you should handover to the invigilator the original copy and office copy of the OMR Sheet. You are permitted to take away with you the question booklet along with candidate's copy of the OMR sheet.
9. Any candidate not darkening any of the five circles in more than 10% question shall be disqualified.
10. Sheets for rough work are appended in the Test Booklet at the end.

Q 1. Accreditation to ITIs is given by

(A) National Council for Vocational Training (NCVT) alone

(B) Quality Council of India (QCI) alone

(C) National Accreditation Board for Education and Training (NABET) alone.

(D) By QCI on norms of NCVT

(E) Question not attempted

Q 2. Which of the following committees was constituted to 'Review, Rationalize and Optimize the Functioning of Sector Skill Councils':

(A) Sharada Prasad Committee

(B) Mihir Shah Committee

(C) Sunil Mehta Committee

(D) None of above

(E) Question not attempted

Q 3. With reference to Pradhan Mantri Kaushal Vikas Yojana, consider the following statements

1. It aims to align the competencies of the unregulated workforce of the country to the National Skill Qualification Framework
2. It is the flagship scheme of the Ministry of Labor and Employment
3. It among other things ,will also impact training in soft skills ,entrepreneurship and financial and digital literacy

Which of the statements given above is/are correct?

(A) 1and 3 only

(B) 2 only

(C) 2 and 3 only.

(D) 1,2,3

(E) Question not attempted

Q 4. Which Commission recognized the strengthening of social and national integration as one of the main goals of education?

(A) Secondary Education Commission
(B) Education Commission of India
(C) National Policy on Education
(D) Revised National Policy
(E) Question not attempted

Q 5. The fundamental purpose of Vocational Education is to prepare people to work in a trade and craft as

(i) Experts in specific technique
(ii) Support role in different technical professions
(iii) Business promoters

Which of these is/are correct

(A) (i) only
(B) (ii) only
(C) (i), (ii) and (iii)
(D) (i) and (ii)
(E) Question not attempted

Q 6. The fundamental purpose of an organization's mission statement is to

(A) Create a good human relations climate in the organization
(B) Define the organization's purpose in society
(C) Define the operational structure of the organization
(D) Generate good public relations for the organization
(E) Question not attempted

Q 7. The acronym SWOT stands for

(A) Special Weapons for Operations Timeliness

(B) Services, Worldwide Optimization, and Transport

(C) Strengths Worldwide Overcome Threats

(D) Strengths, Weaknesses, Opportunities, and Threats

(E) Question not attempted

Q 8. is the foundation of blue ocean strategy.

(A) Innovation

(B) Value creation

(C) Value innovation

(D) value cost trade-off

(E) Question not attempted

Q 9. Which of the following is NOT a major element of the strategic management process?

(A) Formulating strategy

(B) Implementing strategy

(C) Evaluating strategy

(D) Assigning administrative tasks

(E) Question not attempted

Q 10. Which of the following is not a characteristic of strategic management that makes it different from other types of management?

(A) It is interdisciplinary.

(B) It has an external focus

(C) It has an internal focus

(D) It concerns the present direction of the organization

(E) Question not attempted

Q 11. Which of the following is an issue considered in developing corporate strategies?

(A) What business(es) are we in?

(B) What direction are we going?

(C) What resources do we have to implement our strategies?

(D) What businesses are we in and what to do with those businesses?

(E) Question not attempted

Q 12. An organisation's strategy:

(A) Remains set in place longer than the mission and objectives

(B) Generally, forms over a period of time as events unfold

(C) Tends to be formed at the same time the mission is developed and objectives are formulated

(D) Is usually conceived at a single time when managers sit down and work out a comprehensive strategic plan for the next 3-5 years

(E) Question not attempted

Q 13. Which of the following is not an advantage of strategic management?

(A) It provides organizations with a clearer sense of direction and purpose

(B) It helps improve the political, economic, social and technological environment of the organization

(C) It helps orient management decisions to relevant environmental conditions

(D) It helps organizations be proactive rather than reactive

(E) Question not attempted

Q 14. Which of the following defines what business or businesses the firm is in or should be in?

(A) Business strategy

(B) Corporate strategy

(C) Functional strategy

(D) National strategy

(E) Question not attempted

Q 15. Of the following, which one would NOT be considered one of the components of a mission statement?

(A) The target market for XYZ is oil and gas producers as well as producers of chemicals.

(B) XYZ shall hire only those individuals who are with sufficient educational levels so as to be of benefit to our customers

(C) The customers of XYZ shall include global and local consumers of gas and oil products and domestic users of nontoxic chemicals

(D) The technologies utilized by XYZ shall focus upon development of alternative sources of gas and oil so as to remain competitive within the industry

(E) Question not attempted

Q 16. The strategic management process is

(A) A set of activities that will assure a temporary advantage and average returns for the firm.

(B) A decision-making activity concerned with a firm's internal resources, capabilities, and competencies, independent of the conditions in its external environment.

(C) A process directed by top-management with input from other stakeholders that seeks to achieve above-average returns for investors through effective use of the organization's resources.

(D) The full set of commitments, decisions, and actions required for the firm to achieve above-average returns and strategic competitiveness.

(E) Question not attempted

Q 17. The environmental segments that comprise the general environment typically will NOT include

(A) Demographic factors.

(B) Sociocultural factors.

(C) Substitute products or services.

(D) Technological factors.

(E) Question not attempted

Q 18. National Apprentice Promotion Scheme is:

(A) To popularize apprenticeship in schools

(B) Has same objectives as Industrial training Schemes

(C) To encourage enrolment of apprentices in small establishments like Micro, Small and Medium Enterprises (MSMEs) by giving stipend,

(D) None of the above

(E) Question not attempted

Q 19. An external analysis enables a firm to determine what the firm

(A) can do.

(B) should do.

(C) will do.

(D) might do.

(E) Question not attempted

Q 20. _____ is/are the source of a firm's, _____ which is/are the source of the firm's _____.

Fill in blanks from the options given below

(A) Resources, capabilities, core competencies

(B) Capabilities, resources, core competencies

(C) Capabilities, resources, above average returns

(D) Core competencies, resources, competitive advantage

(E) Question not attempted

Q 21. Which of the following is an element of a Firm's remote external environment?

(A) Competition

(B) Political agencies

(C) Suppliers

(D) Trade Union

(E) Question not attempted

Q 22. Large-scale, future oriented plans for interacting with the competitive environment to achieve company objectives refers to its

(A) Strategy

(B) Goals

(C) Competitive analysis

(D) Dynamic policies

(E) Question not attempted

Q 23. SANKALP scheme is an outcome-oriented programme of Ministry of Skill Development & Entrepreneurship (MSDE) with a special focus on

(A) Creating convergence among all skill training activities.

(B) Improving the quality of skill development programs through building a pool of quality trainers.

(C) Both A and B

(D) None of the above

(E) Question not attempted

Q 24. STRIVE scheme is a World Bank assisted-Government of India project with the objective of

(A) Improving performance of ITI.

(B) Increased Capacities of State Governments to support ITIs and Apprenticeship training

(C) Improved Teaching and Learning.

(D) All of the above.

(E) Question not attempted

Q 25. India's developmental plan is comprised of

(A) Central sector schemes, 100% funded by the Union government and implemented by the Central Government machinery.

(B) Centrally Sponsored Scheme (CSS) a certain percentage of the funding is borne by the States in the ratio of 50:50, 70:30, 75:25 or 90:10 and the implementation is by the State Governments.

(C) Both A and B

(D) None of the above.

(E) Question not attempted

Q 26. The information of MIS comes from the

(A) Internal source

(B) external source

(C) Both internal and external source

(D) None of the above

(E) Question not attempted

Q.27 Which of the following is a scalar quantity

(A) Energy

(B) Momentum

(C) Torque

(D) Impulse

(E) Question not attempted

Q.28 Newton is that force which produces an acceleration of 1 m/sec² in a mass of 1 kg. and is equal to

(A) 981 dynes

(B) 103 dynes

(C) 105 dynes

(D) 322 x 103 dynes

(E) Question not attempted

Q.29 If P and Q are the two forces acting at an angle θ, and their resultant makes an angle α with P, then

(A) $\tan \alpha = \frac{Q\sin\theta}{P+Q\cos\theta}$

(B) $\tan \alpha = \frac{Q\sin\theta}{P+Q\sin\theta}$

(C) $\tan \alpha = \frac{Q\sin\theta}{P+Q\tan\theta}$

(D) $\tan \alpha = \frac{Q\sin\theta}{Q+P\cos\theta}$

(E) Question not attempted

Q.30 If 'P' and 'Q' are two concurrent forces having an angle 'θ' in between them , then R the resultant will be calculated by the formula

(A) $R = \sqrt{P^2 + Q^2}$

(B) $R = \sqrt{P^2 + Q^2 + PQ\cos\theta}$

(C) $R = \sqrt{P^2 + Q^2 + PQ\sin\theta}$

(D) $R = \sqrt{P^2 + Q^2 + 2PQ\cos\theta}$

(E) Question not attempted

Q 31. When two concurrent forces 20 kg and 15 kg act at right angles on a particle, then their resultant will be equal to

(A) 35 kg

(B) 25 kg

(C) 5 kg

(D) 20 √15 kg

(E) Question not attempted

Q 32. A weightless rod of length 100 cm is supported horizontally at A and B. A weight of 50 kg is attached on the rod at C . If the support at A cannot bear a pressure more than 30 kg , the distance of C from A when A is about to fall is

(A) 60cm

(B) 40 cm

(C) 50 cm

(D) none of the above

(E) Question not attempted

Q 33. The principle of equilibrium states that

(A) If a body in equlibrium is acted upon by two forces,then they must be equal opposite and collinear

(B) If a body in equlibrium is acted upon by three forces,then the resultant of any two forces must be equal opposite and collinear with third force

(C) If a body in equlibrium is acted upon by four forces,then the resultant of any two forces must be equal, opposite and collinear with the resultant of the other two

(D) All of the above

(E) Question not attempted

Q.34 A hollow circular section has an external diameter of 8 cm and internal diameter of 6 cm . The moment of inertia about the horizontal axis passing through its center will be

(A) 100 cm^4

(B) 137.44 cm^4

(C) 150 cm^4

(D) None of the above

(E) Question not attempted

Q 35. The property which makes the material suitable to be shaped easily by hammering, bending, rolling etc. without cracks or fracture is termed as

(A) Ductility

(B) Malleability

(C) Dilatability

(D) None of these

(E) Question not attempted

Q.36 Two circular mild steel bars A and B of equal lengths l have diameters dA = 2 cm and dB =3 cm. Each is subjected to a tensile load of magnitude P. The ratio of the elongations of the bars lA/lB is

(A) 2/3

(B) 3/4

(C) 4/9

(D) 9/4

(E) Question not attempted

Q.37 A load of 200 kg has to be raised at the end of a steel wire.If the unit stress in the wire must not exceed 800 kg/cm^2, the diameter of the wire required will be nearest to

(A) 4 mm

(B) 8 mm

(C) 14.5 mm

(D) 22 mm

(E) Question not attempted

Q.38 Protractor is used to….. (i) draw angle. (ii) measure angle. (iii) draw curve.

(A) Only (i)is true

(B) Only (ii)is true

(C) Only (iii)is true

(D) All are true

(E) Question not attempted

Q.39 In Engineering Drawing, lines for hidden edges are drawn as _____.

(A) Dashed lines of medium thickness

(B) Thin continuous lines

(C) Alternatively long and short dashes

(D) Thick dashed lines

(E) Question not attempted

Q.40 The ratio of the length of the drawing to the actual length of the object is called as _____.

(A) Reducing factor

(B) Reducing fraction

(C) Representative factor

(D) Representative fraction

(E) Question not attempted

Q 41. In case of 'First-angle' projection method, _____.

(A) The plane of projection lies between the observer and the object

(B) The object lies between the observer and the plane of projection

(C) The top-view comes above the front-view

(D) The front-view comes below the top-view

(E) Question not attempted

Q 42. Tetrahedron has _____ faces, all_____.

(A) Four, equilateral triangles

(B) Six, equilateral triangles

(C) Eight, equilateral triangle

(D) Twelve, equilateral triangles

(E) Question not attempted

Q 43. Which of the following variables controls the physical properties of a perfect gas?

(A) Pressure

(B) Temperature

(C) Volume

(D) All of the above

(E) Question not attempted

Q 44. Which of the following can be regarded as gas so that gas laws could be applicable, within the commonly encountered temperature limits:

(i) O_2, N_2, CO_2 (ii) steam, water vapour, air (iii) O_2, N_2, H_2

(A) Statement (i) is true, but (ii) is not true

(B) Statement (iii) is true, but (i) is not true

(C) Both (i) and (iii) are true

(D) All (i), (ii) and (iii) are true

(E) Question not attempted

Q 45. A closed system is one in which _____.

(A) Mass does not cross boundaries of the system, though energy may do so

(B) Mass crosses the boundary but not the energy

(C) Neither mass nor energy crosses the boundaries of the system

(D) Both mass and energy cross the boundaries of the system

(E) Question not attempted

Q 46. Absolute zero pressure will occur _____.

(A) At sea level

(B) At the centre of the earth

(C) When molecular momentum of the system becomes zero

(D) At a temperature of 273 °K

(E) Question not attempted

Q 47. An isolated system is one in which _____.

(A) mass does not cross boundaries of the system, though energy may do so

(B) mass crosses the boundary but not the energy

(C) neither mass nor energy crosses the boundaries of the system

(D) both mass and energy cross the boundaries of the system

(E) Question not attempted

Q 48. Properties of substances like pressure, temperature and density, in thermodynamic coordinates are _____.

(A) path functions

(B) point functions

(C) cyclic functions

(D) real functions

(E) Question not attempted

Q 49. Zeroth law of thermodynamics _____.

(A) deals with conversion of mass and energy

(B) deals with reversibility and irreversibility of process

(C) deals with heat engines

(D) states that if two systems are both in equilibrium with a third system, they are in thermal equilibrium with each other

(E) Question not attempted

Q 50. Carnot cycle is _____.

(A) a reversible cycle

(B) an irreversible cycle

(C) a semi-reversible cycle

(D) an adiabatic irreversible cycle

(E) Question not attempted

Q 51. Which of the following can be regarded as internal combustion engine:

(i) Petrol engine. (ii) Diesel engine. (iii) Steam engine.

(A) (i) is true, but (ii) is not true

(B) (ii) is true, but (i) is not true

(C) Both (i) and (ii) are true

(D) All (i), (ii) and (iii) are true

(E) Question not attempted

Q 52. Fins are provided over engine cylinder in motor-cycles for _____.

(A) higher strength of cylinder

(B) better cooling

(C) good appearance

(D) higher efficiency

(E) Question not attempted

Q 53. In S.I. units, one ton of refrigeration is equal to _____.

(A) 210 kJ/min

(B) 3.5 kW

(C) 420 kJ/min

(D) both (A) and (B)

(E) Question not attempted

Q 54. The process of addition of moisture to air at the constant dry bulb temperature is known as _____.

(A) humidification

(B) dehumidification

(C) air conditioning

(D) dehydration

(E) Question not attempted

Q 55. The main purpose of a lathe in a workshop is _____.

(A) to cut and shape metal

(B) to drill holes in metal

(C) to join metal pieces together

(D) to polish metal surfaces

(E) Question not attempted

Q 56. Arc welding is a process that uses _____.

(A) a laser beam to join metals

(B) an electric arc to melt and join metals

(C) adhesives to bond metals

(D) uses high pressure to weld metals

(E) Question not attempted

Q 57. In workshop, knurling is _____.

(A) a process of drilling holes

(B) a finishing process that creates a patterned texture on metal

(C) a method of join metals

(D) a technique for bending metal pipes

(E) Question not attempted

Q 58. A ring gauge is used to _____.

(A) check the diameter of shafts or studs

(B) test the accuracy of holes

(C) check the clearance between two mating surfaces

(D) all of the above

(E) Question not attempted

Q 59. Which of the following material can be used to make the patterns?

(A) Aluminium

(B) Wood

(C) Wax

(D) all of the above

(E) Question not attempted

Q 60. A file removes the metal during _____.

(A) forward stroke

(B) return stroke

(C) both forward and return strokes

(D) none of these

(E) Question not attempted

Q 61. The acetylene cylinder is usually painted with _____ colour.

(A) white

(B) black

(C) yellow

(D) none of the above

(E) Question not attempted

Q 62. The teeth of hacksaw blade are bent _____.

(A) towards right

(B) towards left

(C) alternately towards right and left and every third or fourth left straight

(D) may be bent in any direction

(E) Question not attempted

Q 63. V-block is used to _____.

(A) check the trueness of flat surfaces

(B) Check the surface roughness

(C) locate centres of round rods

(D) none of the above

(E) Question not attempted

Q 64. Which of the following is a type of Engineering Materials and is a Metal?

(A) Asbestos

(B) Ferrous Metals

(C) Non-Ferrous Metal

(D) Both (B) and (C)

(E) Question not attempted

Q 65. Which of the following is an example of a thermoplastic?

(A) Melamine

(B) Epoxide

(C) Urethane

(D) Acetal

(E) Question not attempted

Q 66. Which of the following carbides are used for cutting tool?

(A) Tungsten carbide

(B) Silicon carbides

(C) Chromium carbides

(D) all of the above

(E) Question not attempted

Q 67. Which among the following is not an amorphous material?

(A) Glass

(B) Plastic

(C) Lead

(D) Rubber

(E) Question not attempted

Q 68. Two electric bulbs rated for the same voltage have powers of 200 W and 100 W. If their resistances are respectively R1 and R2, then

(A)R1 = 2 R2

(B) R2 = 2 R1

(C) R2 = 4 R1

(D)R1 = 4 R2

(E) Question not attempted

Q 69. The SI unit of reluctance is

(A)AT/Wb

(B) AT/m

(C) AT

(D) N/Wb

(E) Question not attempted

Q 70. A 100 mH coil carries a current of 1A. Energy stored in the magnetic field is

(A)1 J

b) 0.05 J

(C) 1.5 J

(D)2.5 J

(E) Question not attempted

Q 71. The reactance of 1 F capacitance when connected to a d.c. circuit is

(A) Infinite

(B) Zero

(C) 1 Ω

(D) 0.5 Ω

(E) Question not attempted

Q 72. For transfer of maximum power, the relation between the load resistance RL and the internal resistance Ri of the voltage source is .....

(A) RL = 2 Ri

(B) RL = 0.5 Ri

(C) RL = 1.5 Ri

(D) RL = Ri

(E) Question not attempted

Q 73. The maximum power theorem is applied for the solution in

(A) Electronic circuits

(B) Power Systems

(C) Home lighting systems

(D) None of the above

(E) Question not attempted

Q 74. When the supply voltage to a 3-phase induction motor is decreased, it decreases the

(A) Breakdown torque

(B) Starting torque

(C) Slip and Armature current

(D) Both (A) and (B)

(E) Question not attempted

Q 75. The single phase induction motor can be made self-starting, by the use of

(A) an inductor in parallel with the main winding

(B) a capacitor in parallel with the main winding

(C) an auxiliary winding and a centrifugal switch in parallel with the main winding

(D) a capacitor and auxiliary winding in series and their combination in parallel with the main winding

(E) Question not attempted

Q 76. For traction purposes, the preferable motor is

(A) DC shunt motor

(B) Induction motor

(C) DC series motor

(D) Synchronous motor

(E) Question not attempted

Q 77. Rotor of a three phase induction motor receives energy from

(A) A three phase power source

(B) A single phase power source

(C) Stator by means of induction or transformer action

(D) Inverted DC supply source

(E) Question not attempted

Q 78. For a transformer whose primary windings are delta connected, (i) Third harmonic component in exciting current will circulate within the closed delta (ii) Line current on secondary side will have no third harmonic component. Which of the following statements is true?

(A) (i) is false and (ii) is true

(B) (i) and (ii) both are true

(C) (i) is true and (ii) is false

(D) (i) is false and (ii) is false

(E) Question not attempted

Q 79. For the BJT circuit shown, assume that the β of the transistor is 200 VBE= 0.7 V. The mode of operation is

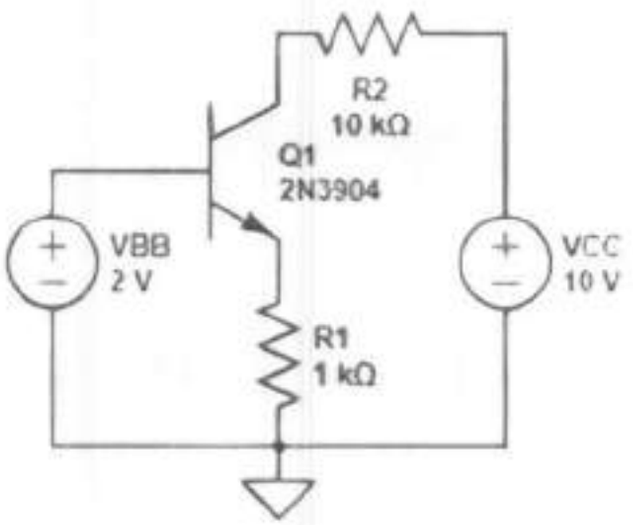
(A) Reverse-Bias

(B) Cut-off

(C) Active Amplification

(D) Saturation

(E) Question not attempted



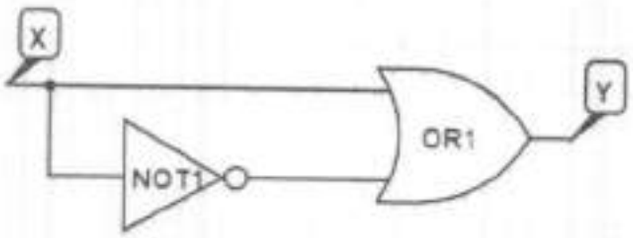
Q 80. Group I lists for four different semiconductor device. Match each device in Group-1 with its characteristic property in Group-II

Group-I	Group-II
A. BJT	1.Popolation Inversion
B. MOS Capacitor	2. Pinch off Voltage
C. LASER	3. Early effect
D. JFET	4.Flat-band Voltage

(A) A-3, B-1, C-4, D-2
(B) A-1, B-4, C-3, D-2
(C) A-3, B-4, C-1, D-2
(D) A-3, B-2, C-1, D-4
(E) Question not attempted

Q 81. The complete set of only those logic gates designed as universal gates is:
(A) NOT, OR, AND gates
(B) XNOR, NOR, NAND gates
(C) NOR, NAND gates
(D) XOR, XNOR gates
(E) Question not attempted

Q 82. The output Y of the logic circuit given below is



(A) 1

(B) 0

(C) X

(D) X'

(E) Question not attempted

Q 83. Aquadag coating is most commonly used in CROs to:

(A) Absorb mostiure

(B) Absorb the extra electrons emitted

(C) Absorb and emit the rays

(D) All of the above.

(E) Question not attempted

Q 84. Which command can be used to display the current TCP/IP network configuration?

(A) Netstat -r

(B) Tracert

(B) ARP -a

(D) IPconfig

(E) Question not attempted

Q 85. An LED has lower output power, _____ witching speed and _____ spectral width than the LASER as an optical source.

(A) Slower , Higher

(B) Faster, Higher

(C) Faster, Lower

(D) Slower, Lower

(E) Question not attempted

Q 86. In the circuit shown below, P and Q are the inputs. The logical function realized by the circuit shown below is

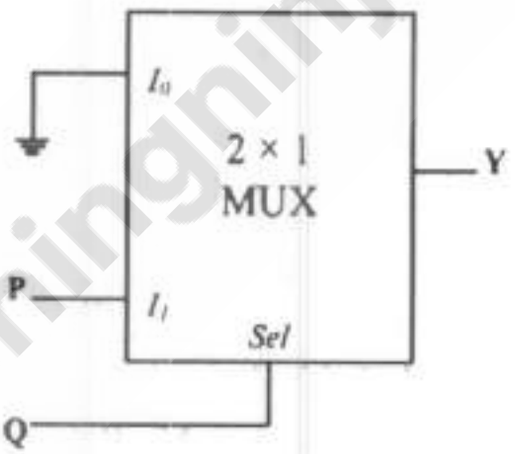
(A) $Y = PQ$

(B) $Y = P + Q$

(C) $Y = P\overline{Q}$

(D) $Y = \overline{P}+\overline{Q}$

(E) Question not attempted



Read the following statement and answer two questions below:-

Consider an ideal MOSFET for Vs. =3V, Idss=5A, and Id=2A.

Q 87. If Vgs = 0V, then what is the drain current Id =?

(A) Zero

(B) Maximum

(C) Id (on)

(D) Idd

(E) Question not attempted

Q 88. Find the pinch of voltage V_p

(A) 4.08

(B) 8.16

(C) 16.32

(D) 0V

(E) Question not attempted

Q 89. Let h (t) denote the impulse response of a causal system with transfer function 1/(s+1); consider the following 3 statements.

S1: The system is stable;

S2: h (t+1)/h (t) is independent of t for t>0

S3: A non- causal system with the same transfer function is stable.

For the above system,

(A) Both S1 and S2 are true

(B) Statements S2 and S3 is true,

(C) Statement S3 and S1 is true, (i)

(D) Only S1, and S3 are true

(E) S1, S2, S3 are true

Q 90. which of the following statements is/are true for a BJT with respect to its DC current gain β?

S1: Under high-level injection condition in forward active mode, β will decrease with increase in the magnitude of collector current.
S2: Under low-level injection condition in forward active mode, where the current at the emitter-base junction is dominated by recombination-generation process, β will decrease with increase in the magnitude of collector current.
S3: β will be lower when the BJT is in saturation region compared to when it is in active region.
S4: A higher value of β will lead to a lower value of the collector-to-emitter breakdown voltage
(A) Both S1 and S2 are true,
(A) S1, S3, S4 are true,
(A) Statement S4 and S1 is true,
(D) Only S1, and S3 are true,
(E) Question not attempted

Q 91. Most probable value of an observed quantity available from a given set of observation is the one for which the sum of the square of errors is a minimum. This statement is called

(A) Principle of square errors

(B) Laws of errors

(C) Principle of least squares

(D) None of these

(E) Question not attempted

Q 92. In a closed traverse

(A) Difference between fore bearing and back bearing should be 90 0

(B) Sum of included angles should be (2N-4) X right angle, where N is number of sides

(C) Sum of included angles should be (2N-1) X right angle, where N is number of sides

(D) None of these

(E) Question not attempted

Q 93. If magnetic declination at a place is 7° 30' W and bearing given by the compass is S 45° 30' E, then true bearing of the place is:

(A) S 38° 0' E

(B) S 52° 0' E

(C) S 53° 0' W

(D) S 53° 0' E

(E) Question not attempted

Q 94. The Bench mark established by the survey of India department with very high precision with reference to mean sea level as the datum are called

(A) G.T.S. Bench Marks

(B) Permanent Bench Marks

(C) Arbitrary Bench Marks

(D) Temporary Bench Marks

(E) Question not attempted

Q 95. With regard to curvature and refraction in levelling

1. the effect is to cause the objects sighted to appear higher than they really are
2. combined correction is 0.0673 D 2 , where D is distance of staff from instrument in km.
3. nature of combined correction is negative

of the above statements

(A) only 1 is correct

(B) 1 and 2 are correct

(C) 2 and 3 are correct

(D) 1 and 3 are correct

(E) Question not attempted

Q 96. If a surveyor is standing at 100 m height then the distance to visible horizon is

(A) 3.8553,

(B) 38.553 m,

(C) 385.53 m,

(D) 3855.3 m

(E) Question not attempted

Q 97. The distance on contour map between any two successive contour lines is known as

(A) contour line,

(B) contour gradient,

(C) contour interval,

(D) horizontal equivalent

(E) Question not attempted

Q 98. Process of turning the telescope about the horizontal axis in a vertical plane by a complete revolution is called

(A) reversing,
(B) transiting,
(C) plunging,
(D) all of these
(E) Question not attempted

Q99. The staff reading taken during leveling operation are:
1.185, 2.604, 1.925, 2.305, 1.155, 0.865, 1.106, 1.685, 2.135, 1.215, 1.545, and 0.605.
Instrument is shifted after the readings 2.604, 0.865, and 1.215.
The readings which are Intermediate sights are

(A) 1.185, 1.925, 1.105, 1.545
(B) 2.604, 0.864, 1.215, 0.605
(C) 2.305, 1.155, 1.685, 2.135
(D) None of these
(E) Question not attempted

Q 100. In Photogrammetry surveying, if focal length of camera is 20 cm, flying height is 3100 m and elevation of the area is 100 m above MSL, then scale of the photograph is
(A) 1 cm = 150 m,
(B) 1cm = 155 m,
(C) 1 cm = 160 m,
(D) None of these
(E) Question not attempted

Assistant Director (Technical) / Principal ITI
(Advt. No. 15/2024) & (Advt. No. 14/2024)

(Held on 15.09.2024)- Morning Session

ANSWER KEY-MASTER SET

Q.No.	Ans Key		Q.No.	Ans Key		Q.No.	Ans Key		Q.No.	Ans Key
1	C		26	C		51	C		76	C
2	A		27	A		52	B		77	C
3	A		28	C		53	D		78	B
4	B		29	A		54	A		79	D
5	B		30	D		55	A		80	C
6	B		31	B		56	B		81	C
7	D		32	B		57	B		82	A
8	C		33	D		58	A		83	B
9	D		34	B		59	D		84	D
10	D		35	B		60	A		85	A
11	C		36	D		61	D		86	A
12	B		37	A		62	C		87	A
13	B		38	C		63	D		88	B
14	B		39	A		64	D		89	A
15	B		40	D		65	D		90	B
16	D		41	B		66	A		91	C
17	C		42	A		67	C		92	B
18	C		43	D		68	B		93	D
19	D		44	B		69	A		94	A
20	A		45	A		70	B		95	C
21	B		46	C		71	A		96	B
22	A		47	C		72	D		97	D
23	C		48	B		73	A		98	D
24	D		49	D		74	D		99	C
25	C		50	A		75	D		100	A