PREVIOUS YEAR PAPER

DSSSB Technical Assistant (Intrumentation & Control) 2021 — 17 November 2021, Shift 3

DSSSB Other Posts · 17 November 2021 · Shift 3

135 of the paper's 200 questions · +1 for a correct answer, −0.25 for a wrong one · 120 minutes

Left out of the original paper: 65 (any question that needs a figure, a symbol or formatting we cannot show, or whose text did not read back cleanly from the booklet).

Questions from the Delhi Subordinate Services Selection Board's paper of 17 November 2021, Shift 3. Each question is followed by its answer, and the answer key is repeated on the last page.

Take it as a timed practice test: exambharo.com/dsssb-other-posts/previous-year-papers/dsssb-other-posts-2021-technical-assistant-intrumentation-control-17-nov-shift-3/

General Ability

1. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
LPDY, POGX, TNJW, XMMV, ?

(a) BLPU
(b) BMLW
(c) BPLU
(d) BLMW

Answer: (a)

2. Identify the letter-cluster that does NOT belong to the following series.
KRID, MPLH, ONOL, QLRO, SJUT, UHXX

(a) SJUT
(b) QLRO
(c) ONOL
(d) UHXX

Answer: (b)

3. Four words have been given, out of which three are alike in some manner and one is different. Select the word that is different.

(a) Brutal
(b) Savage
(c) Moderate
(d) Cruel

Answer: (c)

4. Select the option that is related to the third term in the same way as the second term is related to the first term.
GLUE : JJXC :: LAPT : ?

(a) IDSR
(b) ISDR
(c) OCSS
(d) OYSR

Answer: (d)

5. Select the option that is related to the third word in the same way as the second word is related to the first word.
Energy : Joule :: Angle : ?

(a) Roentgen
(b) Pound
(c) Radian
(d) Candela

Answer: (c)

6. In a certain code language, 'TRAIN' is written as 'QOFNK'. How will 'PAGES' be written in that language?

(a) MXDCP
(b) MCDXP
(c) MFDJP
(d) UFLJX

Answer: (c)

7. In a certain code language, 'TRICK' is coded as '58749' and 'PRINT' is coded as '38715'.How will 'PINK' be coded in that language?

(a) 3179
(b) 7391
(c) 3719
(d) 7319

Answer: (c)

8. Druv is the brother of Roshan. Rupali is the sister of Arjun. Roshan is the son of Rupali. How is Druv related to Rupali?

(a) Son
(b) Brother
(c) Nephew
(d) Father

Answer: (a)

9. Pramod, Dilip, Rohan, Sukumar, Tilak, Vishak, Wasim and Nilam are sitting around a circle facing the centre. Tilak is second to the right of Rohan, who is third to the right of Pramod. Sukumar is second to the left of Pramod and fourth to the right of Dilip. Nilam is third to the right of Vishak, who is not an immediate neighbour of Pramod.
In which of the following combinations is the first person sitting between the second and third persons?

(a) Vishak, Tilak,Sukumar

(b) Tilak, Nilam, Sukumar

(c) Dilip, Rohan,Vishak

(d) Vishak, Rohan, Tilak

Answer: (d)

10. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
Statements:
All scales are magnets.
All trains are magnets.
Conclusions:
I. Some scales are trains.
II. Some trains are scales.

(a) Only conclusion I follows

(b) Only conclusion II follows

(c) Neither conclusion I nor II follows

(d) Either conclusion I or II follows

Answer: (c)

11. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
Statements:
Some kickers are solvents.
Some solvents are stoves.
All stoves are posters.
Conclusions:
I. Some posters are solvents.
II. Some stoves are kickers.
III. No stove is a kicker.
IV. Some solvents are kickers.

(a) Only conclusions I and II follow

(b) Only conclusions II and IV follow

(c) Only conclusions II and III follow

(d) Only conclusions I and IV and either conclusion II or III follow

Answer: (d)

12. Which two signs should be interchanged in the following equation to make it correct?
290 − 156 × 6 ÷ 12 + 4 + 18 = 0

(a) + and ÷

(b) × and −

(c) × and ÷

(d) + and −

Answer: (c)

13. Select the number from among the given options that can replace the question mark (?) in the following series.
7, 15, 30, 62, 125, 253, ?

(a) 480

(b) 508

(c) 408

(d) 580

Answer: (b)

15. Ronald walks 10 km towards the north to reach a stadium.Then, he turns to his right and walks 9 km. After this he turns to his left and walks 8km to reach a fitness centre. Again, he turns towards his right and startswalking straight to reach a cafe. In which direction is he walking now?

(a) North

(b) South

(c) East

(d) West

Answer: (c)

16. Anirudh started from his house and travelled 1 km towards the west to reach a public park.Then he turned 270 degrees anti-clockwise and travelled 1 km to reach a general store, and then turned left and travelled 2 km. From there he further travelled 5 km straight towards the south and reached his office. What is the shortest distance between the office and his house?

(a) 4 km

(b) 5 km

(c) 6 km

(d) 7 km

Answer: (b)

General Awareness

21. Leafy vegetables are green in colour because of:

(a) carotenoid

(b) collagen

(c) carotene

(d) chlorophyll

Answer: (d)

22. Which of the following organs is affected mainly during jaundice?

(a) Heart
(b) Liver
(c) Lungs
(d) Brain

Answer: (b)

23. Albert Einstein got the Nobel Prize in 1921 for:

(a) the Law of the Photoelectric Effect
(b) theory of relativity
(c) Wave-Particle Duality
(d) the Quantum Theory of Light

Answer: (a)

24. The Mozambique Channel is an arm of the Indian Ocean located between the Southeast African countries of Mozambique and:

(a) Madagascar
(b) Namibia
(c) Zambia
(d) Botswana

Answer: (a)

25. Which of the following States has the minimum p entage of Decadal Growth according to the Census 2011?

(a) Kerala
(b) Manipur
(c) Rajasthan
(d) Punjab

Answer: (a)

26. The Gandhi–Irwin Pact was signed by Mahatma Gandhi and Lord Irvin on-

(a) 23 April 1930
(b) 5 March 1931
(c) 25 August 1930
(d) 8 November 1931

Answer: (b)

27. Who among the following died on 4 May 1799 defending his capital Seringapatam?

(a) Tipu Sultan
(b) Haidar Ali
(c) Umdat ul-Umara
(d) Azim-ud-Daula

Answer: (a)

28. In 1722, Burhan-ul-Mulk Saadat Khan was appointed the subedar of:

(a) Malva
(b) Awadh
(c) Bengal
(d) Mewar

Answer: (b)

29. In which year did the Mughal emperor appoint the Company as the Diwan of the provinces of Bengal?

(a) 1757
(b) 1762
(c) 1764
(d) 1765

Answer: (d)

30. Which of the following books is written by Indian jurist, economist, politician and social reformer, BR Ambedkar?

(a) All from Memory
(b) Courage and Conviction
(c) Waiting for a Visa
(d) Ente Katha (My Story)

Answer: (c)

31. Who among the following was awarded 'Air Trar ort World's (ATW) 2021 Airline of the Year'?

(a) Qatar Airways
(b) Singapore Airlines
(c) Korean Air
(d) Japan Airlines

Answer: (c)

32. Who among the following is the first prime minister of India who resigned from office?

(a) Indira Gandhi
(b) Gulzarilal Nanda
(c) Morarji Desai
(d) Lal Bahadur Shastri

Answer: (c)

33. By which Constitutional Amendment Act was the 10th Schedule added to the Constitution of India?

(a) 61st Constitutional Amendment Act
(b) 52nd Constitutional Amendment Act
(c) 85th Constitutional Amendment Act
(d) 24th Constitutional Amendment Act

Answer: (b)

34. In which of the following states is the Rock Shelters of Bhimbetka situated?
(a) Rajasthan
(b) Madhya Pradesh
(c) Bihar
(d) Chhattisgarh
Answer: (b)

35. Who among the following turned his palace into a centre of musical training and learning where exponents from different parts of India assembled and found patronage?
(a) Radhakishore Manikya
(b) Bir Bikram Kishore
(c) Birchandra Manikya
(d) Ratna Manikya I
Answer: (c)

36. When the RBI is defined as the lender of last resort, this means:
(a) when retail consumers are not able to get loans anywhere, they can go to RBI
(b) when commercial firms are not able to get loans anywhere, they can go to RBI
(c) when banks face solvency issues, they can go to the RBI
(d) when small scale industries are not able to get loans anywhere, they can go to RBI
Answer: (c)

37. Which of the following was NOT one of the aims rade Policy Reform in India?
(a) Dismantling of quantitative restrictions
(b) Reduction of tariff rates
(c) Removal of small-scale industries
(d) Removal of licensing procedures for imports
Answer: (c)

38. Which of the following books is written by a famous former international cricket player, Kapil Dev?
(a) Cricket My Style
(b) Playing It My Way
(c) The Test of My Life
(d) Cutting Edge
Answer: (a)

39. Who won gold medals for India in the 100m and 200m sprints in the first Asian Games?
(a) Murali Kuttan
(b) PT Usha
(c) Lavinho Pinto
(d) Milkha Singh
Answer: (c)

40. Which of the following options is correctly matched?
    (a) Walker Cup - Tennis
    (b) En Passant - Chess
    (c) Term CUE - Baseball
    (d) Bird's Nest stadium - Seoul
    Answer: (b)

General English

63. The old man felt very _____ because he had no friends.
    (a) lonely
    (b) remote
    (c) distant
    (d) private
    Answer: (a)

64. No one can _____ the fact that climate change is one of the biggest problems today.
    (a) refuse
    (b) deny
    (c) drop
    (d) fail
    Answer: (b)

65. Choose the correct synonym of the word 'homa from the following:
    (a) Purity
    (b) Innocence
    (c) Censure
    (d) Tribute
    Answer: (d)

66. Choose the correct antonym of the word 'obsolete' from the following:
    (a) ancient
    (b) Immune
    (c) Contemporary
    (d) Vague
    Answer: (c)

67. Read the following sentence and identify the part that has an error.
By the time I reach home, / my pet dog, Jimmy, / has been sitting at the door / waiting for me.
    (a) By the time I reach home
    (b) my pet dog, Jimmy
    (c) has been sitting at the door
    (d) waiting for me
    Answer: (c)

69. Fill in the blank with the correct word from the options given below.
Due to the complexity of the case, the jury took a long time to come to a _____.

(a) concensus
(b) consenssus
(c) concencus
(d) consensus

Answer: (d)

70. Identify the correct word from the options given below and fill in the blank.
The lady who fainted had been standing in the _____ for two hours.

(a) queue
(b) que
(c) cue
(d) qeue

Answer: (a)

72. Select the most appropriate meaning of the given idiom or phrase.
Ask for the moon

(a) Want something that is impossible to get or achieve
(b) Do something that happens rarely, not frequently'
(c) Be very happy about something
(d) Go back a very long time ago

Answer: (a)

73. Select the most appropriate meaning of the idiom or phrase given.
A red-letter day

(a) A very happy, exciting and important day
(b) A day full of bad happenings
(c) A day of immoral activities
(d) A very sad and unpleasant day

Answer: (a)

74. Parts of a sentence are given in jumbled order. Arrange the parts in the right order to form a meaningful sentence.
P. and in their developmental process, they lose the confidence in chasing their dreams Q. rather it needs great effort and hard work to reach to its peak
R. but students fail to understand this strategy
S. success does not depend upon the short-cut method

(a) SPRQ
(b) SQRP
(c) PQRS
(d) QPRS

Answer: (b)

75. Parts of a sentence are given in jumbled order. Arrange the parts in the right order to form a meaningful sentence.
P. however, majority of fatal accidents happen
Q. if reasonable precautions are not taken
R. it requires proper training from the coach and knowledge of equipments, S. mountaineering is a popular outdoor adventurous sport

(a) RQSP
(b) PSQR
(c) SRPQ
(d) QRSP

Answer: (c)

77. Which option is closest in meaning to 'prove their complicity'

(a) explain their actions to Ranvir Shorey
(b) to do someone harm or wrong
(c) to agree with Ranvir Shorey's charge
(d) to do someone a favour

Answer: (b)

78. To what does the actor, Ranvir Shorey, attribute his 'despair'?

(a) The fact that he had to live in Mumbai without any future or professional success.
(b) The isolation from his close friends and family who threw him out of his home.
(c) That he could not name the conspirators behind the attack on his life.
(d) The mental and professional harassment and isolation meted out to him by powerful Bollywood bigwigs

Answer: (d)

79. Which option is the closest in meaning to the Latin phrase 'Modus operandi'?

(a) A secret maneuver by one's enemies at work
(b) A method of operation that indicates a pattern
(c) An example set to encourage or promote others
(d) A book that lays out the rules of engagement in an industry

Answer: (b)

80. What are Ranvir Shorey and Kangana Ranaut referring to, when they make the charge of damage and drastic tragedies in Bollywood?

(a) The attempt to sabotage the career of Sushant Singh Rajput
(b) The suicide attempt of Ranvir Shorey
(c) The discrimination of Kangana Ranaut by Bollywood bigwigs
(d) The opening of a case against Bollywood moguls by the police

Answer: (a)

Discipline1

101. Pure semiconductor material is known as _____ semiconductor.

(a) intrinsic

(b) extrinsic

(c) P-type

(d) N-type

Answer: (a)

103. Half-wave rectifier converts AC power to DC power. In this process, it achieves the efficiency of:

(a) 55%

(b) 41%

(c) 81%

(d) 61%

Answer: (b)

105. Which of the following statements is FALSE with respect to Bipolar Junction Transistors (BJTs)?

(a) BJTs are normally operated with CB junction reverse biased and BE junction forward biased.

(b) A BJT has two pn junctions.

(c) A BJT has two layers of semiconductor material.

(d) Base, emitter and collectors are the three terminals of BJT.

Answer: (c)

106. In P-channel JFETs, _____.

(a) the majority charge carriers are holes

(b) the majority charge carriers are ele

(c) the majority charge carriers are both elec s and holes

(d) no majority charge carriers are present

Answer: (a)

107. To operate an n-channel DE-MOSFET (Depletion Enhancement MOSFET) in enhancement mode, _____.

(a) the gate terminal must be made negative with respect to the source

(b) the gate terminal must be made positive with respect to the source

(c) the gate terminal must be connected to the drain

(d) the source terminal only should be connected to V DD

Answer: (b)

108. The difference between Enhancement MOSFET and Depletion MOSFET is that:

(a) in Enhancement MOSFET, the channel does not exist initially and is induced by applying voltage, and in depletion MOSFET, the channel is permanently fabricated (by doping) at the time of construction of MOSFET itself

(b) in enhancement MOSFET, the channel is much enhanced than in depletion MOSFET

(c) the Enhancement MOSFET should always be used in forward biased and the Depletion MOSFET should always be used in reverse biased

(d) the Depletion MOSFET is highly doped than enhancement MOSFET

Answer: (a)

110. Network theorems in electrical circuits are mostly used:

(a) to analyse the nonlinear characteristics of circuit elements

(b) to determine voltage and/or currents in circuits where Ohm's law cannot easily be applied

(c) to calculate the reactive power

(d) to calculate only the power dissipation of circuit

Answer: (b)

112. The dual of Norton’s theorem is:

(a) Millman’s theorem

(b) reciprocity theorem

(c) superposition theorem

(d) Thevenin’s theorem

Answer: (d)

114. In 3-phase generators, _____ separate windings are placed in stator slots at an angle of _____ apart.

(a) four, 90°

(b) six, 60°

(c) two, 180°

(d) three, 120°

Answer: (d)

115. Which of the following statements is NOT true with respect to Reciprocity Theorem?

(a) Reciprocity theorem is applicable only to single source network.

(b) Reciprocity theorem is applicable to the circuit containing R, L and C components.

(c) Reciprocity theorem is applicable to the circuit having both dependent and independent source.

(d) Reciprocity theorem is applicable to linear and time invariant network.

Answer: (c)

116. Fleming's left-hand rule in DC motors is used:
(a) to find the current in DC motor
(b) to find the direction of rotation of DC motor
(c) to find the direction of current in DC motor
(d) to find the number of rotations of DC motor
Answer: (b)

117. A transducer is a device that:
(a) converts a physical quantity into the proportional electrical signal
(b) converts alternating current to direct current
(c) allows flow of current in only one direction
(d) is used to detect the presence of electric current in the circuit
Answer: (a)

118. The resistance of a metal conductor is given by:
(a) R = (ρ + L)/A
(b) R = ρ x L x A
(c) R = (ρ x L)+A
(d) R = (ρ x L)/A
Answer: (d)

119. The resistive element in the potentiometer is in th orm of a helix; it is called _____.
(a) helipot
(b) helicopter
(c) helipad
(d) hexapod
Answer: (a)

Discipline2

121. Thermoelectric transducers are _____ transducers.
(a) passive
(b) sensitive
(c) active
(d) insensitive
Answer: (c)

122. The errors that get introduced when a measuring instrument is operated in a dynamic environment are _____ errors.
(a) systematic static
(b) systematic dynamic
(c) gross
(d) random
Answer: (b)

123. Which of the following statements is FALSE with respect to sensors?

(a) Sensor is an element that produces signal relating to the quantity being measured.

(b) Sensor is a circuit that converts high voltage signal to low voltage signal.

(c) Sensor is a device that provides a usable output in response to a specified measurand.

(d) Sensor transforms an input of displacement into a change in inductance.

Answer: (b)

124. The difference between the maximum and minimum values of the input of a sensor is called _____.

(a) range

(b) span

(c) error

(d) accuracy

Answer: (b)

125. Hysteresis error value is normally specified as a positive or negative percentage of:

(a) the specified output range

(b) both input and output range

(c) error output

(d) the specified input range

Answer: (d)

126. When a beam of charged particle passes throu magnetic field, forces act on the particle and the beam is deflected from its straight line path
This is called:

(a) Hall effect

(b) magnetic effect

(c) semiconductor effect

(d) effect of displacement

Answer: (a)

127. Wheatstone bridge is used in strain gauges mainly to _____.

(a) know the quality factor of the material

(b) control the current flow

(c) detect very small changes in resistance

(d) detect very small changes in Inductance

Answer: (c)

129. The binary addition of 1+1 results in:

(a) sum = 0, carry = 1

(b) sum =1, carry =0

(c) sum =0, carry =0

(d) sum =1, carry = 1

Answer: (a)

130. NAND and NOR gates are called as universal gates because:
(a) those gates are universally accepted
(b) all other basic gates can be implemented by using these gates
(c) these are the only two gates to be used to design all logic circuits
(d) these gates consume low power
Answer: (b)

131. A BCD number can be converted into Excess 3 code by:
(a) subtracting decimal number 3 from it
(b) adding decimal number 3 to it
(c) taking the 1s complement of the least significant bit
(d) taking complement and adding one to it
Answer: (b)

132. The minimal SOP expression for f(a,b,c) = $\sum$m(1,3,5,7) is:
(a) C
(b) c′
(c) ac
(d) a′c
Answer: (a)

134. Which of the following sequential circuits can be ed to avoid race around condition?
(a) SR flip flop
(b) JK flip flop
(c) Master slave JK flip flop
(d) T latch
Answer: (c)

135. Which of the following statements is true?
(a) T flip flop is called transparent flip flop.
(b) D flip flop is called transparent flip flop.
(c) JK flip flop is called transparent flip flop.
(d) No flip flop is said to be transparent.
Answer: (b)

136. In DAC, the accuracy is given by:
(a) comparison of actual output voltage with expected output
(b) time required for conversion of analogue signal into its digital equivalent
(c) ratio of change in output voltage resulting from a change of one LSB
(d) different analogue output values that can be provided by DAC
Answer: (a)

137. The resolution of 8-bit DAC is:

(a) 256

(b) 8

(c) 64

(d) 32

Answer: (a)

138. A bridge circuit is said to be balanced when:

(a) no current flows through the null detector

(b) high current flows through the null detector

(c) input voltage is equal to output voltage

(d) output voltage is greater than input voltage

Answer: (a)

139. In a Cathode Ray Tube Display (CRT Display), the intensity of electron beam is controlled by the:

(a) applied current to the grid

(b) applied voltage to the grid

(c) frequency of the grid

(d) either current or voltage of the grid

Answer: (b)

140. Maxwell's bridge circuit is essentially used to m ure the:

(a) inductance

(b) capacitance

(c) frequency

(d) resistance

Answer: (a)

Discipline3

141. The property of a material by which it emits light when an electron beam strikes it , is called:

(a) reflection

(b) refraction

(c) dispersion

(d) fluorescence

Answer: (d)

142. Galvanometer in Wheatstone bridge is used:

(a) as a null detector

(b) as an ammeter

(c) as a variable resistor

(d) to amplify the current in the circuit

Answer: (a)

143. Which of the following is NOT a type of Digital Voltmeter (DVM)?

(a) Ramp type DVM

(b) Integrating DVM

(c) Differentiating DVM

(d) Successive approximation DVM

Answer: (c)

144. Analog multimeters involve _____ movements, whereas digital multimeters are constructed using electronic circuits that do not contain any moving parts.

(a) optical

(b) multilevel

(c) electromechanical

(d) residual

Answer: (c)

145. Which of the following statements is a DISADVANTAGE of Digital Storage Oscilloscope (DSO)?

(a) DSOs are used to detect even peak signals.

(b) DSOs can be used as logic state analyser.

(c) DSOs also allow automation.

(d) DSOs are costlier than conventional oscilloscopes.

Answer: (d)

147. Which of the following subsystems is NOT prese n an induction type single phase energy meter?

(a) A driving system

(b) A moving system

(c) A braking system

(d) A ring system

Answer: (d)

148. A process required in the energy meter to determine and reduce the error when the energy is measured, is:

(a) energy meter calibration

(b) energy meter testing

(c) energy meter compilation

(d) energy meter rotation

Answer: (a)

149. Voltage to frequency converter type digital voltmeter is a _____ of digital voltmeter.

(a) null balance type

(b) integrating type

(c) ramp type

(d) potentiometric type

Answer: (b)

150. Which of the following is NOT a sub-functional block of digital frequency meter?

(a) Amplifier

(b) Schmitt Trigger

(c) Start/Stop gate

(d) Decoder

Answer: (d)

151. While using op-amp as a square wave generator, the op-amp is forced to operate in which of the following regions?

(a) Saturated region

(b) Linear region

(c) Cut-off region

(d) Either linear or cut-off region.

Answer: (a)

152. Triangular wave generator can be formed by simply connecting:

(a) a square wave generator to a square wave generator

(b) an integrator to a square wave generator

(c) a square wave generator to a comparator

(d) a comparator to a square wave generator

Answer: (b)

154. An immersion line may be inscribed on the liqui -gas thermometer:

(a) to indicate the depth to which it should be s erged into the measured environment

(b) to indicate minimum value of tempe

(c) to indicate the maximum level of temperat

(d) to indicate the point for calibration

Answer: (a)

155. Which of the following is NOT an advantage of thermometers with bimetallic temperature sensitive elements?

(a) Ease of reading

(b) Low cost

(c) Ruggedness

(d) Calibration

Answer: (d)

156. Pyrometers are essentially photo detectors designed specifically for the measurement of:

(a) humidity

(b) temperature

(c) flow

(d) voltage

Answer: (b)

157. If liquids are flowing with flow rate of 'Q' in a tube with different cross-section areas, i.e., A1 and A2, then the continuity equation is given as:

(a) Q = V1 x A1 = V2 x A2

(b) Q = V1 + A1 = V2 + A2

(c) Q = V1 – A1 = V2 – A2

(d) Q = V1 / A1 = V2 / A2

Answer: (a)

158. Which of the following statements is true with respect to Bernoulli equation?

(a) Bernoulli equation is a conservation of Power Equation.

(b) Bernoulli equation gives relationship between pressure and temperature.

(c) Bernoulli equation does not take into account the flow losses.

(d) Bernoulli equation can be used between two positions in a flow system where there is only low flow.

Answer: (c)

159. The mass of water vapour in a mixture in grains (where 7000 grains = 1 lb) divided by the mass of dry air or gas in the mixture in pounds is called:

(a) specific humidity

(b) relative humidity

(c) density

(d) flow

Answer: (a)

160. Specific gravity (SG) of a liquid or soli[illegible]defi[illegible]d as:

(a) the mass per unit volume.

(b) the density of the material divided by the density of water or the specific weight of the material divided by the specific weight of water at a specified temperature.

(c) the weight per unit volume of a material

(d) the amount of water content per unit volume

Answer: (b)

Discipline4

161. Induction hydrometers are used to:

(a) convert the specific weight or density of a liquid into an electrical signal

(b) measure the temperature

(c) measure the volume of the fluid

(d) measure both specific weight and temperature

Answer: (a)

163. Comparators are classified into four types, namely mechanical, optical, electrical and pneumatic, based on:

(a) the various inputs applied to it

(b) the type of magnification employed in it

(c) the accuracy they provide

(d) the cost

Answer: (b)

164. Which of the following statements are true with respect to optical comparators? a. Basic principle of measurement with optical flats is that of interferometry. b. Working principle is based on the principle of balanced AC bridge. c. Optical flat is used in optical technique of dimensional measurement using monochromatic light. d. Operates in pneumatic system.

(a) Both statements a and b

(b) Both statements a and c

(c) Both statements a and d

(d) Both statements b and d

Answer: (b)

165. Measurement of angular or rotational velocity CANNOT be done by:

(a) revolution counter

(b) capacitive tacho

(c) drag cup type tacho

(d) transducer

Answer: (d)

166. A device that can be used to measure rp. lutions per minute) without making any contact with the rotating body is:

(a) stroboscope

(b) accelerometer

(c) lever

(d) telescope

Answer: (a)

167. Which of the following is NOT a type of dynamometer used for shaft power measurement?

(a) Absorption type

(b) Driving type

(c) Transmission type

(d) Comparison type

Answer: (d)

168. The standard unit of torque and power are _____ and _____, respectively.

(a) newton metre (Nm); joules

(b) horse power(hp); watt

(c) newton metre (Nm); watt

(d) rotations per minute(rpm); joule

Answer: (c)

169. The physical process of separating, isolating, identifying and quantifying the components of complex mixtures is called:

(a) chromatography

(b) spectrography

(c) spectroscopy

(d) calligraphy

Answer: (a)

170. Which of the following is NOT a basic part of elution type chromatograph?

(a) Sample injection system

(b) Thermal compartments

(c) Detector

(d) Amplifier

Answer: (d)

171. If supplied power is also called delivered power, ...n dissipated power is also called _____ power.

(a) relational

(b) absorbed

(c) positional

(d) connection

Answer: (b)

174. Basically, feedforward control is used:

(a) to measure important disturbance variables and take corrective action before they upset the process

(b) to measure the large controller gains

(c) to measure the boiling temperature

(d) to know how the controlled variable responds to changes

Answer: (a)

175. Which of the following is NOT the typical application of ratio control?

(a) Specifying the relative amounts of components in blending operations

(b) Maintaining a stoichiometric ratio of reactants to a reactor

(c) Keeping a specified reflux ratio for a distillation column

(d) Surge control of a controller

Answer: (d)

176. Which of the following statements is/are true/false with respect to configurations for feed forward and feedback control? i) Feedback trim is normally used in conjunction with feed forward control to compensate for modelling errors and unmeasured disturbances. ii)An alternative configuration for feed forward-feedback control is to have the feedback controller output serve as the set point for the feed forward controller.

(a) Statements i) and ii) both are true.

(b) Statement i) is true and statement ii) is false.

(c) Statements i) and ii) both are false.

(d) Statements i) is false and statement ii) is true.

Answer: (a)

177. For a cascade control system to function properly, the secondary control loop must:

(a) respond slower than the primary loop

(b) respond faster than the primary loop

(c) respond simultaneously with the primary loop

(d) not respond

Answer: (b)

178. Which of the following is a FALSE statement with respect to active transducers?

(a) Active transducer generates electrical signal directly in response to the physical parameter.

(b) Active transducer is a self-generating device that operates under energy conversion principle.

(c) Piezoelectric sensors are active transducers.

(d) Active transducer operates under energy co olling principles.

Answer: (d)

179. Which of the given pressure-sensitive devices is a twisted metallic tube with elliptical cross section sealed at one end and tends to straighten out on application of pressure?

(a) Diaphragm

(b) Capsule

(c) Bourdon Tube

(d) Bellow

Answer: (c)

180. Bellows are normally used for _____measurements and are _____ to vibrations.

(a) low pressure; sensitive

(b) high pressure; sensitive

(c) high pressure; unreactive

(d) low pressure; unreactive

Answer: (a)

Discipline5

181. Which of the following comparators works on the principle of balanced AC bridge with four induction coils?

(a) Pneumatic comparator
(b) Electrical comparator
(c) Mechanical comparator
(d) Optical comparator

Answer: (b)

182. Gross errors in instruments are generated due to:

(a) faults existing in instruments
(b) unknown reasons
(c) human factor involved in measurements
(d) lack of proper measuring instruments

Answer: (c)

183. Which of the following gate is to be used along with two half adders to design a full adder?

(a) AND gate
(b) OR gate
(c) Ex-OR gate
(d) Not gate

Answer: (b)

185. The instruction MOV A, #99H is an example of _ __ addressing mode.

(a) register
(b) direct
(c) indirect
(d) immediate

Answer: (d)

186. The maximum hexadecimal value that a timer register can count in Timer Mode 0 is:

(a) FFH
(b) FFFFH
(c) 1FFF H
(d) FEH

Answer: (c)

187. Data pointer of 8051 microcontroller is a _____ register subdivided into two ____ registers.

(a) 8-bit; 4-bit
(b) 16-bit; 8-bit
(c) 16-bit; 6-bit
(d) 32-bit; 16-bit

Answer: (b)

188. The internal address of PORT 0 in 8051 microcontroller is:

(a) 80H
(b) 90H
(c) A0H
(d) B0H

Answer: (a)

189. The stack pointer of 8051 is initialised to the address_____ after reset.

(a) 08H
(b) 07H
(c) 09H
(d) 06H

Answer: (b)

190. In order to select BANK 3 of internal RAM of 8051, the RS0 and RS1 bits of PSW register should be:

(a) 0,0
(b) 0,1
(c) 1,0
(d) 1,1

Answer: (d)

191. The 8051 microcontroller has _____I/O pins configured as _____ 8-bit parallel ports.

(a) 32; 8
(b) 32; 4
(c) 28; 4
(d) 24; 3

Answer: (b)

192. _____ is an 8-bit register of 8051 that stores the integer remainder after division operation done by DIV instruction.

(a) Register B
(b) Register A
(c) DPL
(d) DPH

Answer: (a)

193. Address Latch Enable(ALE) pin of 8051 is used to _____.

(a) demultiplex address and data lines of port 1
(b) enable external RAM/EPROM
(c) demultiplex address and data lines of port 0
(d) fetch the program from the addresses 0000h to 0FFFh

Answer: (c)

194. If the accumulator holds the value C5H(11000101B) and the carry is zero, the content of the accumulator after the execution of the instruction RRC A is:

(a) 8BH
(b) 8AH
(c) E2H
(d) 62H

Answer: (d)

195. The content of register B after the execution of the following sequence of instructions is _____.

```
CLR A
CPL A
MOV B, #99H
MUL AB
```

(a) 67H
(b) 98H
(c) 00H
(d) 86H

Answer: (b)

196. The assembler directive EQU in 8051 microcontroller is used to _____.

(a) define a constant without storing information in the memory
(b) define a constant by storing information in the mory
(c) redefine the symbols that are already declare
(d) indicate the starting address

Answer: (a)

198. The only register of 8051 without internal on-chip RAM address is:

(a) stack pointer
(b) program counter
(c) accumulator
(d) timer register

Answer: (b)

199. Which of the following timer modes of 8051 is said to be the auto reload mode?

(a) Mode 0
(b) Mode 1
(c) Mode 2
(d) Mode 3

Answer: (c)

200. Which register of 8051 controls the baud rate in the asynchronous mode of transmission?

(a) SCON

(b) SBUF

(c) Timer 0

(d) TMOD

Answer: (a)

Answer key

Answer key from the Delhi Subordinate Services Selection Board's official answer key for this sitting. "—" means the key gave none.

General Ability

1	**(a)**	2	**(b)**	3	**(c)**	4	**(d)**	5	**(c)**	6	**(c)**	7	**(c)**	8	**(a)**
9	**(d)**	10	**(c)**	11	**(d)**	12	**(c)**	13	**(b)**	15	**(c)**	16	**(b)**		

General Awareness

21	**(d)**	22	**(b)**	23	**(a)**	24	**(a)**	25	**(a)**	26	**(b)**	27	**(a)**	28	**(b)**
29	**(d)**	30	**(c)**	31	**(c)**	32	**(c)**	33	**(b)**	34	**(b)**	35	**(c)**	36	**(c)**
37	**(c)**	38	**(a)**	39	**(c)**	40	**(b)**								

General English

63	**(a)**	64	**(b)**	65	**(d)**	66	**(c)**	67	**(c)**	69	**(d)**	70	**(a)**	72	**(a)**
73	**(a)**	74	**(b)**	75	**(c)**	77	**(b)**	78	**(d)**	79	**(b)**	80	**(a)**		

Discipline1

101	**(a)**	103	**(b)**	105	**(c)**	106	**(a)**	107	**(b)**	108	**(a)**	110	**(b)**	112	**(d)**
114	**(d)**	115	**(c)**	116	**(b)**	117	**(a)**	118	**(d)**	119	**(a)**				

Discipline2

121	**(c)**	122	**(b)**	123	**(b)**	124	**(b)**		**(d)**	126	**(a)**	127	**(c)**	129	**(a)**
130	**(b)**	131	**(b)**	132	**(a)**	134		5	**(b)**	136	**(a)**	137	**(a)**	138	**(a)**
139	**(b)**	140	**(a)**												

Discipline3

141	**(d)**	142	**(a)**	143	**(c)**	144	**(c)**	145	**(d)**	147	**(d)**	148	**(a)**	149	**(b)**
150	**(d)**	151	**(a)**	152	**(b)**	154	**(a)**	155	**(d)**	156	**(b)**	157	**(a)**	158	**(c)**
159	**(a)**	160	**(b)**												

Discipline4

161	**(a)**	163	**(b)**	164	**(b)**	165	**(d)**	166	**(a)**	167	**(d)**	168	**(c)**	169	**(a)**
170	**(d)**	171	**(b)**	174	**(a)**	175	**(d)**	176	**(a)**	177	**(b)**	178	**(d)**	179	**(c)**
180	**(a)**														

Discipline5

181	**(b)**	182	**(c)**	183	**(b)**	185	**(d)**	186	**(c)**	187	**(b)**	188	**(a)**	189	**(b)**
190	**(d)**	191	**(b)**	192	**(a)**	193	**(c)**	194	**(d)**	195	**(b)**	196	**(a)**	198	**(b)**
199	**(c)**	200	**(a)**												