



# राष्ट्रीय प्रौद्योगिकी संस्थान दिल्ली

## NATIONAL INSTITUTE OF TECHNOLOGY DELHI

(शिक्षा मंत्रालय, भारत सरकार के अधीन एक स्वायत्त संस्थान)

(An autonomous Institute under the aegis of Ministry of Education (Shiksha Mantralaya), Govt. of India)

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### QUESTION PAPER FOR THE POST OF Sr. TECHNICIAN (Mechanical Engineering)

(PAY LEVEL-4 , as per the 7<sup>th</sup> CPC)

Maximum Marks : 100

Time: 150 Minutes

Name of Candidate : \_\_\_\_\_

Roll No. : \_\_\_\_\_

#### **INSTRUCTIONS TO CANDIDATES**

- The Written Examination shall consist of one paper with Part A, Part B, and Part C, carrying 100 marks in total.
- Part A contains 20 Objective Type questions on General Knowledge, carrying 01 mark each (20 marks).
- Part B contains 60 Objective Type questions on Domain Knowledge, carrying 01 mark each (60 marks).
- Part C contains 05 Descriptive Type questions, each carrying 04 marks (20 marks).
- For Objective Type questions (Part A & B), four options (A, B, C, D) shall be provided and only one correct answer is to be chosen.
- One (01) mark shall be awarded for each correct answer in Part A and Part B.
- Negative marking of 0.25 mark shall be applicable for each incorrect answer in Part A and Part B.
- Unattempted questions in Part A and Part B shall not attract negative marking.
- No negative marking shall be applicable for Part C (Descriptive questions).
- The total duration of the Written Examination (Part A, B & C) shall be 2 hours and 30 minutes (150 minutes).
- Candidates must write their Name, Roll Number and Signature on each page of the Question Paper / Answer Booklet.

- l) Candidates must ensure that the Question Paper / Answer Booklet is complete and free from defects before the examination begins.
- m) Mobile phones, electronic watches, calculators and all electronic gadgets are strictly prohibited in the examination hall.
- n) Cutting, overwriting or use of correction fluid in answers is not permitted.
- o) The Question Paper, Answer Sheet(s) and Admit Card must be returned to the Invigilator after completion of the examination.
- p) Use of unfair means or misconduct during the examination shall lead to cancellation of candidature.
- q) The decision of the Institute authorities shall be final and binding in all matters related to the examination.
- r) In case of any discrepancies, the English Version of the Question shall prevail.

#### **अभ्यर्थियों के लिए निर्देश**

- a) लिखित परीक्षा एक प्रश्न पत्र की होगी, जिसमें भाग-A, भाग-B तथा भाग-C सम्मिलित होंगे, तथा कुल 100 अंक होंगे।
- b) भाग-A में सामान्य ज्ञान से संबंधित 20 वस्तुनिष्ठ प्रकार के प्रश्न होंगे, जिनमें प्रत्येक प्रश्न 01 अंक का होगा (कुल 20 अंक)।
- c) भाग-B में विषय/डोमेन ज्ञान से संबंधित 60 वस्तुनिष्ठ प्रकार के प्रश्न होंगे, जिनमें प्रत्येक प्रश्न 01 अंक का होगा (कुल 60 अंक)।
- d) भाग-C में 05 वर्णनात्मक प्रकार के प्रश्न होंगे, जिनमें प्रत्येक प्रश्न 04 अंक का होगा (कुल 20 अंक)।
- e) वस्तुनिष्ठ प्रकार के प्रश्नों (भाग-A एवं भाग-B) के लिए चार विकल्प (A, B, C, D) दिए जाएंगे तथा केवल एक सही उत्तर का चयन करना होगा।
- f) भाग-A एवं भाग-B में प्रत्येक सही उत्तर के लिए एक (01) अंक प्रदान किया जाएगा।
- g) भाग-A एवं भाग-B में प्रत्येक गलत उत्तर के लिए 0.25 अंक की नकारात्मक अंकन किया जाएगा।
- h) भाग-A एवं भाग-B में अनुत्तरित (Unattempted) प्रश्नों पर कोई नकारात्मक अंकन नहीं होगा।
- i) भाग-C (वर्णनात्मक प्रश्नों) में नकारात्मक अंकन लागू नहीं होगा।
- j) लिखित परीक्षा (भाग-A, भाग-B एवं भाग-C) की कुल अवधि 2 घंटे 30 मिनट (150 मिनट) होगी।
- k) अभ्यर्थियों को प्रश्न पत्र / उत्तर पुस्तिका के प्रत्येक पृष्ठ पर अपना नाम, रोल नंबर एवं हस्ताक्षर करना अनिवार्य होगा।
- l) अभ्यर्थियों को यह सुनिश्चित करना होगा कि प्रश्न पत्र / उत्तर पुस्तिका पूर्ण एवं किसी भी प्रकार की त्रुटि से मुक्त हो, परीक्षा प्रारंभ होने से पूर्व।
- m) परीक्षा कक्ष में मोबाइल फोन, इलेक्ट्रॉनिक घड़ियाँ, कैलकुलेटर तथा सभी प्रकार के इलेक्ट्रॉनिक उपकरण सख्त रूप से वर्जित हैं।
- n) उत्तरों में कटिंग, ओवरराइटिंग या करेक्शन फ्लूड का प्रयोग वर्जित है।
- o) परीक्षा समाप्ति के पश्चात प्रश्न पत्र, उत्तर पत्रक(ों) तथा प्रवेश पत्र (एडमिट कार्ड) पर्यवेक्षक को वापस करना अनिवार्य होगा।
- p) परीक्षा के दौरान अनुचित साधनों का प्रयोग या कदाचार पाए जाने पर अभ्यर्थी की उम्मीदवारी निरस्त कर दी जाएगी।
- q) परीक्षा से संबंधित सभी मामलों में संस्थान प्राधिकरणों का निर्णय अंतिम एवं बाध्यकारी होगा।
- r) किसी भी प्रकार की विसंगति की स्थिति में, प्रश्न का अंग्रेजी संस्करण मान्य होगा।

## PART A

Q. No.	Question	Answer
1	<p>Rearrange the parts to form a meaningful sentence:</p> <p>(P) despite the heavy rain (Q) the match continued (R) much to the delight (S) of the spectators</p> <p>A. P Q R S B. Q P R S C. R S P Q D. P R S Q</p>	A
2	<p>In each sentence, a part is underlined with A, B, C, D. Choose the part that contains the error.</p> <p>Neither the teacher (A) nor the students (B) was (C) ready for the test (D).</p> <p>A. A B. B C. C D. D</p>	C
3	<p>Choose the correct meaning for the given idiom/phrase:</p> <p>Once in a blue moon <i>means</i>:</p> <p>A. Very often B. Very rarely C. Every day D. Every month</p>	B
4	<p>Choose the synonym of "Ambiguous".</p> <p>A. Clear B. Doubtful C. Certain D. Definite</p>	B
5	<p>A can complete a work in 12 days. B can complete the same work in 18 days. In how many days can they complete the work together?</p> <p>A एक काम 12 दिन में पूरा कर सकता है। B वही काम 18 दिन में पूरा कर सकता है। वे दोनों मिलकर कितने दिन में काम पूरा कर सकते हैं?</p> <p>A. 6 days B. 9 days C. 8 days D. 7.2 days</p>	D

6	<p>If a person covers half of the journey at 40 km/h and the other half at 60 km/h, what is the average speed?</p> <p>अगर कोई व्यक्ति आधी यात्रा 40 km/h की रफ़्तार से और आधी रफ़्तार से 60 km/h की रफ़्तार से तय करता है, तो उसकी औसत रफ़्तार क्या है?</p> <p>A. 45 km/h B. 48 km/h C. 50 km/h D. 52 km/h</p>	B
7	<p>Find the simple interest on ₹2000 for 3 years at 5% per annum.</p> <p>₹2000 पर 3 साल के लिए 5% सालाना ब्याज पर सिंपल इंटरैस्ट पता करें।</p> <p>A. ₹200 B. ₹250 C. ₹300 D. ₹350</p>	C
8	<p>Find the missing number:</p> <p>लुप्त संख्या ज्ञात करें:</p> <p>4, 9, 19, 39, ____</p> <p>A. 89 B. 79 C. 69 D. 99</p>	B
9	<p>If ROAD = URDG, then BIKE = ?</p> <p>अगर ROAD = URDG, तो BIKE = ?</p> <p>A. ELNH B. ELM I C. FMLI D. ELNI</p>	A

10	<p>Arrange the words in logical order</p> <ol style="list-style-type: none"> <li>1. District</li> <li>2. Village</li> <li>3. Country</li> <li>4. State</li> </ol> <p>शब्दों को लॉजिकल क्रम में लगाएँ</p> <ol style="list-style-type: none"> <li>1. ज़िला</li> <li>2. गाँव</li> <li>3. देश</li> <li>4. राज्य</li> </ol> <p>A. 2, 1, 4, 3 B. 1, 2, 3, 4 C. 2, 4, 1, 3 D. 2, 1, 3, 4</p>	A
11	<p>URL stands for:</p> <ol style="list-style-type: none"> <li>A. Universal Resource Link</li> <li>B. Uniform Resource Locator</li> <li>C. Uniform Reference Link</li> <li>D. Unique Resource Locator</li> </ol> <p>URL का मतलब है:</p> <ol style="list-style-type: none"> <li>A. यूनिवर्सल रिसोर्स लिंक</li> <li>B. यूनिफ़ॉर्म रिसोर्स लोकेटर</li> <li>C. यूनिफ़ॉर्म रेफ़रेंस लिंक</li> <li>D. यूनिक रिसोर्स लोकेटर</li> </ol>	B
12	<p>A cell address in Excel is represented as:</p> <p>एक्सेल में एक सेल एड्रेस को इस तरह दिखाया जाता है:</p> <ol style="list-style-type: none"> <li>A. 1A</li> <li>B. AA</li> <li>C. A1</li> <li>D. 11</li> </ol>	C

13	<p>Which option is used to check spelling and grammar?</p> <p>A. Review Tab B. Insert Tab C. Home Tab D. Layout Tab</p> <p>स्पेलिंग और ग्रामर चेक करने के लिए कौन सा ऑप्शन इस्तेमाल किया जाता है?</p> <p>A. रिव्यू टैब B. इन्सर्ट टैब C. होम टैब D. लेआउट टैब</p>	A
14	<p>Which feature allows automatic slide switching during a presentation?</p> <p>A. Animation Pane B. Slide Transition Timing C. Design Ideas D. Presenter View</p> <p>कौन सा फ्रीचर प्रेजेंटेशन के दौरान ऑटोमैटिक स्लाइड स्विचिंग की सुविधा देता है?</p> <p>A. एनिमेशन पेन B. स्लाइड ट्रांज़िशन टाइमिंग C. डिज़ाइन आइडियाज़ D. प्रेजेंटर व्यू</p>	B
15	<p>Microsoft Word is used for:</p> <p>A. Calculations B. Creating documents C. Making presentations D. Browsing internet</p> <p>Microsoft Word का इस्तेमाल इनके लिए किया जाता है:</p> <p>A. कैलकुलेशन B. डॉक्यूमेंट बनाना C. प्रेजेंटेशन बनाना D. इंटरनेट ब्राउज़ करना</p>	C

16	<p>A collection of cells is called:</p> <p>A. Workbook B. Worksheet C. Row D. Column</p> <p>सेल्स के कलेक्शन को कहते हैं:</p> <p>A. वर्कबुक B. वर्कशीट C. रो D. कॉलम</p>	B
17	<p>NEP 2020 aims to increase Gross Enrolment Ratio in higher education to what percentage by 2035?</p> <p>NEP 2020 का लक्ष्य 2035 तक हायर एजुकेशन में ग्रॉस एनरोलमेंट रेश्यो को कितने प्रतिशत तक बढ़ाना है?</p> <p>A. 40% B. 45% C. 50% D. 60%</p>	C
18	<p>The 2024 Summer Olympics were hosted in which city?</p> <p>A. Tokyo B. Los Angeles C. Rome D. Paris</p> <p>2024 के समर ओलंपिक्स किस शहर में होस्ट किए गए थे?</p> <p>A. टोक्यो B. लॉस एंजिल्स C. रोम D. पेरिस</p>	D
19	<p>The COP28 Climate Conference (2023) was held in:</p> <p>A. Germany B. UAE C. UK D. Canada</p> <p>COP28 क्लाइमेट कॉन्फ्रेंस (2023) कहाँ हुआ था:</p> <p>A. जर्मनी B. UAE C. UK D. कनाडा</p>	B

20	<p>Which ministry launched the PM Vishwakarma Scheme?</p> <p>A. Ministry of MSME B. Ministry of Finance C. Ministry of Rural Development D. Ministry of Labour</p> <p>किस मंत्रालय ने PM विश्वकर्मा स्कीम शुरू की?</p> <p>A. MSME मंत्रालय B. वित्त मंत्रालय C. ग्रामीण विकास मंत्रालय D. श्रम मंत्रालय</p>	A
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## PART B

**1. The ratio of linear stress to linear strain is known as**

- (a) Poisson's ratio
- (b) bulk modulus
- (c) modulus of rigidity
- (d) modulus of elasticity.

**2. Hooke's law holds good upto**

- (a) proportionality limit
- (b) yield point
- (c) elastic limit
- (d) plastic limit.

**3. The property of a material by virtue of which a body returns to its original shape after removal of the load is known as**

- (a) ductility
- (b) plasticity
- (c) elasticity
- (d) resilience.

**4. A rod of steel of  $1 \text{ cm}^2$  in cross-sectional area and 100 cm long is subjected to an axial pull of 20000 N. If  $E = 20 \times 10^6 \text{ N/cm}^2$ , the elongation will be**

- (a) 1 cm
- (b) 0.2 cm
- (c) 0.1 cm
- (d) 0.15 cm.

**5. The stress at any section of a rod (due to its own weight) of length ( $l$ ) and diameter ( $d$ ) rigidly fixed at the upper end and hanging is**

- (a) directly proportional to  $x$
- (b) inversely proportional to  $x$
- (c) directly proportional to  $x^2$
- (d) inversely proportional to  $x^2$

where  $x$  = Distance of section from the lower end.

**6. The ratio of modulus of rigidity to modulus of elasticity for a Poisson's ratio of 0.25 would be**

- (a) 0.5
- (b) 0.4
- (c) 0.3
- (d) 1.0

**7. The property by virtue of which a metal can be beaten into plates is called**

- (a) ductility
- (b) malleability
- (c) resilience
- (d) plasticity.

**8. For the bars of composite section**

- (a) the load carried by different materials is the same as the total external load
- (b) the extension in different materials is different
- (c) the total external load is equal to the total sum of the loads carried by different materials
- (d) strain in all materials is equal

**9. If  $D$  is the diameter of a sphere, then volumetric strain is equal to**

- (a) two times the strain of diameter
- (b) 1.5 times the strain of diameter
- (c) three times the strain of diameter
- (d) the strain of diameter.

**10. The cross-sectional area of a rod is  $10 \text{ cm}^2$ . A pull of 10 tonnes is suddenly applied to the rod. The maximum stress produced in the rod would be**

- (a) 1 tonne/cm<sup>2</sup>
- (b) 2 tonne/cm<sup>2</sup>
- (c) 0.5 tonne/cm<sup>2</sup>
- (d) 4 tonne/cm<sup>2</sup>

**11. Which of the following is an intensive property of a thermodynamic system?**

- (a) Volume
- (b) Temperature
- (c) Mass
- (d) Energy

**12. The standard value of atmospheric pressure taken at sea level is**

- (a) 1.013 bar
- (b) 760 mm of Hg
- (c)  $1013 \times 10^2 \text{ N/m}^2$
- (d) all of these

**13. The value of one bar (in S. I. units) is equal to**

- (a)  $1 \times 10^2 \text{ N/m}^2$
- (b)  $1 \times 10^3 \text{ N/m}^2$
- (c)  $1 \times 10^4 \text{ N/m}^2$
- (d)  $1 \times 10^5 \text{ N/m}^2$

**14. The value of 1 mm of Hg is equal to**

- (a)  $1.333 \text{ N/m}^2$

- (b) 13.33 N/ m<sup>2</sup>
- (c) 133.3 N/m<sup>2</sup>
- (d) 1333 N/m<sup>2</sup>

**15. When two bodies are in thermal equilibrium with a third body, they are also in thermal equilibrium with each other. This statement is called**

- (a) Zeroth law of thermodynamics
- (b) First law of thermodynamics
- (c) Second law of thermodynamics
- (d) Kelvin Planck's law

**16. First law of thermodynamics deals with**

- (a) conservation of heat
- (b) conservation of momentum
- (c) conservation of mass
- (d) conservation of energy

**17. A cycle consisting of one constant pressure, one constant volume and two isentropic processes is known as**

- (a) Carnot cycle
- (b) Stirling cycle
- (c) Otto cycle
- (d) Diesel cycle

**18. For the same maximum pressure and temperature,**

- (a) Otto cycle is more efficient than Diesel cycle
- (b) Diesel cycle is more efficient than Otto cycle
- (c) Dual cycle is more efficient than Otto and Diesel cycles
- (d) Dual cycle is less efficient than Otto and Diesel cycles

**19. The efficiency of Diesel cycle depends upon**

- (a) temperature limits
- (b) pressure ratio
- (c) compression ratio pressure
- (d) cut-off ratio and compression ratio

**20. Tick mark the correct statement**

- (a) Intensive properties are dependent on mass of the system
- (b) Extensive properties are independent of the mass
- (c) Intensive properties are independent of the mass
- (d) Temperature and pressure are extensive properties.

**21. A closed system is one which**

- (a) permits the passage of energy and matter across the boundaries
- (b) permits the passage of energy across the boundary but does not permit the passage of matter
- (c) does not permit the passage of energy and matter across the boundary
- (d) does not permit the passage of energy but permits the passage of matter across it.

**22. Specific heat is defined as the amount of heat required**

- (a) to raise unit degree of temperature of a substance
- (b) to raise unit mass of substance through unit degree of temperature
- (c) to raise unit mass of substance through 10 degrees of temperature
- (d) none of the above.

**23. The ratio of specific heats of a gas at constant pressure and at constant volume is**

- (a) always a constant
- (b) always varies with the pressure
- (c) always varies with the temperature
- (d) none of the above.

**24. Change of internal energy is equal to heat interchange  $Q$  in case of**

- (a) non-flow constant volume process
- (b) non-flow constant pressure process
- (c) non-flow isothermal process
- (d) none of the above.

**25. Work done in expansion is equal to heat supplied in case of**

- (a) non-flow constant volume process
- (b) non-flow constant pressure process
- (c) non-flow isothermal process
- (d) none of the above.

**26. The first law of thermodynamics states**

- (a) if two bodies are each equal in temperature to a temperature of the third body, they are equal in temperature to each other
- (b) that in a closed system undergoing through a cycle the net work delivered to the surroundings is proportional to the net heat taken from the surroundings
- (c) heat cannot flow from lower temperature to higher temperature without the aid of an external agency
- (d) that the net work can be produced during a cycle without some supply of heat.

**27. The energy associated with molecular motions is called**

- (a) K.E. of gases
- (b) internal energy
- (c) entropy
- (d) enthalpy.

**28. Isentropic process means**

- (a) a process in which no heat is supplied or rejected
- (b) a process in which no heat is supplied or rejected and entropy is constant
- (c) a process in which temperature is constant
- (d) none of the above.

**29. Otto cycle consists of**

- (a) two constant volume and two adiabatic processes
- (b) two constant volume and two isothermal processes
- (c) two adiabatic and two isothermal processes
- (d) two constant pressure and two adiabatic processes

**30. For the same compression ratio and same heat input, the thermal efficiency of Otto cycle is**

- (a) less than that of Diesel cycle
- (b) more than that of Diesel cycle
- (c) equal to Diesel engine
- (d) none of the above.

**31. The compression ratios for Diesel engines lie in the range of**

- (a) 5 to 8
- (b) 15 to 20
- (c) 3 to 6
- (d) 30 to 40.

**32. The difference between free expansion and throttling is**

- (a) enthalpy is constant in free expansion but not in throttling
- (b) temperature is constant in free expansion but not in throttling
- (c) that in case of free expansion the work done is zero but in case of throttling work done is not zero.
- (d) that in case of free expansion the gas leaves with large velocity whereas in throttling the gas has negligible velocity.

**33. A perfect gas is heated at constant pressure. The final volume of the gas becomes 1.5 times the initial volume. If its initial temperature is 30°C, the final temperature will be**

- (a) 45°C
- (b) 100°C
- (c) 177°C
- (d) 330°C.

**34. Select the correct statement.**

- (a) The efficiency of Diesel cycle increases with increase in cut-off.
- (b) The efficiency of Diesel cycle is equal to Otto cycle for the same compression ratio.
- (c) For the same compression ratio, the efficiency of dual combustion cycle is less than Diesel cycle.

(d) An Otto cycle consists of two constant volumes and two adiabatic processes.

**35. Temperature of the order of - 160°C can be measured accurately by**

- (a) thermocouple
- (b) mercury thermometer
- (c) gas thermometer
- (d) pyrometer.

**36. The size of a lathe is specified by the**

- (a) maximum job length in mm that may be held between centres
- (b) the height of centres measured over the lathe bed
- (c) maximum diameter that can be rotated over the bed ways
- (d) any one of the above

**37. The cutting tool in a milling machine is held in position by**

- (a) arbor
- (b) spindle
- (c) column
- (d) knee

**38. Which one of the following statements about cutting fluids is wrong?**

- (a) A cutting fluid permits the use of higher cutting speeds.
- (b) A cutting fluid improves the tool life.
- (c) A cutting fluid provide lubrication and washes away the chips.
- (d) A cutting fluid increases the kinetic co-efficient of friction and keeps down the cutting forces

**39. Soldering of lead-pipe is known as**

- (a) lancing
- (b) soldering
- (c) brazing
- (d) GTAW

**40. For welding titanium by MIG process, the gas used is**

- (a) pure argon gas
- (b) CO<sub>2</sub>
- (c) argon-oxygen mixture
- (d) nitrogen

**41. Oxidising flame is a flame which is obtained by supplying**

- (a) more volume of acetylene and less volume of oxygen
- (b) less volume of acetylene and more volume of oxygen
- (c) equal volume of acetylene and oxygen

(d) none of the above

**42. For welding heavy parts such as trucks, broken motor castings, connecting rods etc., the welding process used is generally**

- (a) resistance welding
- (b) gas welding
- (c) thermit welding
- (d) spot welding.

**43. In an arc-welding process, using direct current, the amount of useful arc heat**

- (a) at the anode and cathode are equal
- (b) at the anode is one-third and at the cathode two-third
- (c) at the anode is two-third and at the cathode one-third
- (d) at the anode is 80% and at the cathode 20%.

**44. Arc-voltage is the voltage drop across the arc between the two electrodes. The arc-voltage**

- (a) increases with the decrease of arc length
- (b) increases with the increase of arc length
- (c) is independent of arc length
- (d) none of the above.

**45. Which of the following properties should a good moulding sand have?**

- (a) A good moulding sand must be porous enough
- (b) A good moulding sand must have a good strength
- (c) A good moulding sand must have chemical resistivity with molten metal
- (d) A good moulding sand must have adhesiveness

**46. For large castings, the sand grains should be**

- (a) fine
- (b) medium
- (c) coarse
- (d) rounded.

**47. Which of the following welding processes uses non-consumable electrodes?**

- (a) MIG welding
- (b) TIG welding
- (c) CIG welding
- (d) Sub-merged arc welding

**48. The forging of steel specimen is done at a temperature of**

- (a) 400°C
- (b) 600°C
- (c) 800°C
- (d) 1000°C.

**49. For conventional extrusion, the pressure acting on the metal varies from**

- (a) 100 to 200 kg/cm<sup>2</sup>
- (b) 200 to 1000 kg/cm<sup>2</sup>
- (c) 1000 to 5000 kg/cm<sup>2</sup>
- (d) 5000 to 7000 kg/cm<sup>2</sup>.

**50. Which one is the wrong statement about forging?**

- (a) The forgings have high strength and ductility.
- (b) The forgings offer great resistance to impact and fatigue loads.
- (c) Forging renders the parts uniform in density as well as dimensions.
- (d) The work-piece after forging has a less reliability.

**51. Acetylene gas is produced from**

- (a) calcium chloride
- (b) calcium carbide
- (c) carbon
- (d) calcium carbonate.

**52. In brazing, the melting point of the filler metal should be**

- (a) above 1000°C
- (b) above 800°C
- (c) above 420°C
- (d) above 300°C

**53. In sand moulding, cope is the**

- (a) uppermost part of the flask
- (b) bottom most part of the flask
- (c) middle part of the flask
- (d) none of the above

**54. The purpose of sprue is to**

- (a) act as a reservoir for molten metal
- (b) feed molten metal from pouring basin to gate
- (c) removing pattern from the mould
- (d) split the pattern in two parts.

**55. Which of the following are casting defects?**

- (a) blow-holes
- (b) cold-cracks
- (c) scabs
- (d) all of the above

**56. The shrinkage rule for cast iron pattern is**

- (a) 30 mm per metre longer than the actual object

- (b) 10 mm per metre longer than the actual object
- (c) 10 mm per metre shorter than the actual object
- (d) 30 mm per metre shorter than the actual object.

**57. Aluminium is the best of the metals for making pattern, because it is**

- (a) easy to work
- (b) light in weight
- (c) resistant to corrosion
- (d) all of the above

**58. The process of pouring molten metal in the gravity of a metallic mould by gravity, is known as**

- (a) die casting
- (b) slush casting
- (c) pressed casting
- (d) permanent mould casting

**59. The impurities in centrifugal casting**

- (a) are forced outside the surface
- (b) are collected at the centre of the casting
- (c) are uniformly distributed
- (d) none of the above.

**60. For ornamental parts, and toys of non-ferrous alloys, the casting method used is known as**

- (a) die casting
- (b) slush casting
- (c) centrifugal casting
- (d) permanent mould casting.

## **PART C**

### **Question 1**

Define the term fitting in workshop technology. List five hand tools used in a fitting workshop and state their specific uses.

### **Question 2**

Differentiate between temporary and permanent joints. List three types of screw heads and their matching tools.

### **Question 3**

What do you understand by indexing in a milling machine? Explain different methods of indexing.

### **Question 4**

What is the difference between an automatic lathe and a capstan lathe? Give an example of components suitable for a capstan lathe, including dimensions.

### **Question 5**

- (a) Describe the procedure to calculate the Brinell hardness number.
- (b) Explain the concept of load factor in Brinell Testing.

**Part B Answer Key**

<b>Q. No.</b>	<b>Answer</b>	<b>Q. No.</b>	<b>Answer</b>	<b>Q. No.</b>	<b>Answer</b>
1.	d	21.	b	41.	b
2.	a	22.	b	42.	c
3.	c	23.	a	43.	c
4.	c	24.	a	44.	b
5.	a	25.	c	45.	d
6.	b	26.	b	46.	c
7.	b	27.	b	47.	b
8.	c	28.	b	48.	d
9.	c	29.	a	49.	d
10.	c	30.	b	50.	d
11.	b	31.	b	51.	b
12.	d	32.	d	52.	c
13.	d	33.	c	53.	a
14.	c	34.	d	54.	b
15.	a	35.	c	55.	d
16.	d	36.	d	56.	b
17.	d	37.	a	57.	d
18.	b	38.	d	58.	d
19.	d	39.	c	59.	b
20.	c	40.	a	60.	b





# राष्ट्रीय प्रौद्योगिकी संस्थान दिल्ली

## NATIONAL INSTITUTE OF TECHNOLOGY DELHI

(शिक्षा मंत्रालय, भारत सरकार के अधीन एक स्वायत्त संस्थान)

(An autonomous Institute under the aegis of Ministry of Education (Shiksha Mantralaya), Govt. of India)

Plot No. FA7, Zone P1, GT Karnal Road, Delhi-110036, INDIA

दूरभाष/Tele: +9111-33861000, 1001, 1005 वेबसाइट/Website: [www.nitdelhi.ac.in](http://www.nitdelhi.ac.in)

F. No.: NITD/01/Admn/606/2025-26/STME

Dated: 16.03.2026

### NOTICE

**Subject: Provisional Result of the Written Test/Examination held on 16.03.2026 for the post of Senior Technician (Mechanical Engineering) (Pay Level 4) advertised under the 01 OBC at NIT Delhi, advertised vide Advt. No.: 08/2025 – reg.**

S. No.	Roll No.	Form No	Part A (20 Marks)	Part B (60 Marks)	Part C (20 Marks)	Marks Obtained in Written Test/Examination (100 Marks)
1.	25081201	CNDN10016	6.25	12.25	05	23.5
2.	25081205	CNDN10473	8.00	7.50	17	32.5
3.	25081206	CNDN10504	13.75	21.50	9.50	44.75
4.	25081208	CNDN10606	8.75	26.50	10.50	45.75
5.	25081209	CNDN10682	10.25	28.75	07	46
6.	25081211	CNDN10827	12.50	10.50	04.50	27.5
7.	25081213	CNDN10866	8.25	21.50	7.50	37.25
8.	25081215	CNDN10960	9.75	20.75	04	34.5
9.	25081218	CNDN10982	10.25	11.25	05	26.5
10.	25081219	CNDN11001	9.25	13.50	08	30.75
11.	25081230	CNDN11318	13.75	17.50	5.50	36.75
12.	25081232	CNDN11414	6.75	44.00	6.50	57.25
13.	25081235	CNDN11544	11.25	50.50	10	71.75
14.	25081238	CNDN11703	13.75	33.00	06	52.75
15.	25081246	CNDN12066	13.00	40.75	08	61.75
16.	25081252	CNDN12260	11.50	31.50	10.50	53.5
17.	25081254	CNDN12273	10.50	16.00	3.50	30
18.	25081255	CNDN12277	6.25	34.50	08	48.75
19.	25081260	CNDN12383	7.50	15.00	09	31.5
20.	25081262	CNDN12399	12.50	28.75	08	49.25
21.	25081264	CNDN12407	10.25	42.00	12	64.25
22.	25081267	CNDN8693	9.25	30.00	10	49.25
23.	25081269	CNDN8936	13.25	18.75	3.50	35.5
24.	25081270	CNDN8938	12.50	12.50	06	31

S. No.	Roll No.	Form No	Part A (20 Marks)	Part B (60 Marks)	Part C (20 Marks)	Marks Obtained in Written Test/Examination (100 Marks)
25.	25081272	CNDN9058	10.25	37.50	10.50	58.25
26.	25081274	CNDN9112	8.75	33.75	09	51.5
27.	25081278	CNDN9306	10.50	34.75	15	60.25
28.	25081280	CNDN9453	12.00	38.00	11.50	61.5
29.	25081281	CNDN9455	10.25	23.75	8.50	42.5
30.	25081283	CNDN9528	11.25	18.75	11	41
31.	25081286	CNDN9707	11.75	41.50	12	65.25
32.	25081288	CNDN9748	11.50	16.00	00	27.5
33.	25081290	CNDN9906	9.75	35.50	11	56.25
34.	25081293	CNDN9973	8.75	21.25	8.50	38.5
35.	25081294	CNDN9979	7.00	6.75	02	15.75

Note:

Minimum Qualifying percentage is 55% i.e. 55 marks out of 100 for OBC category.

The result of the candidates who appeared for the aforementioned post is provisional in nature and may be subject to change upon receipt and examination of representations, if any, against the provisional answer key.

Further, it is hereby informed that only the candidates who are finally shortlisted, as specified at Point No. 2 under (A) of the document dated 12.12.2025, shall be called to appear for the Proficiency Test for the said post (Ref. F. No. NITD/01/Admn/606/2025–26 dated 12.12.2025).

The selection of candidates shall be subject to meeting all the eligibility criteria and successful verification of documents.

Candidates are requested to regularly visit the Institute website for further updates and notifications.

This issues with the approval of the Competent Authority.

Sd/-  
(Registrar, NIT Delhi)



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F. No.: NITD/01/Admn/606/2025-26/STME

Dated: 16.03.2026

### NOTICE

**Subject: Provisionally shortlisted candidate for the Proficiency Test for the post of Senior Technician (Mechanical Engineering) (Pay Level 4) advertised under the 01 OBC category, at NIT Delhi, advertised vide Advt. No.: 08/2025 – reg.**

S. No.	Roll No.	Form No	Part A (20 Marks)	Part B (60 Marks)	Part C (20 Marks)	Marks Obtained in Written Test/Examination (100 Marks)
1.	25081235	CNDN11544	11.25	50.50	10	71.75
2.	25081286	CNDN9707	11.75	41.50	12	65.25
3.	25081264*	CNDN12407	10.25	42.00	12	64.25
4.	25081246	CNDN12066	13.00	40.75	08	61.75
5.	25081280	CNDN9453	12.00	38.00	11.50	61.5
6.	25081278*	CNDN9306	10.50	34.75	15	60.25

\* The eligibility of these candidates is subject to the submission of a valid OBC-NCL certificate, issued on or after 01.04.2025, in the prescribed format, by 18.03.2026 through email at [nfp2025@nitdelhi.ac.in](mailto:nfp2025@nitdelhi.ac.in)

#### **Note:**

Minimum Qualifying percentage is 55% i.e. 55 marks out of 100 for the Post under OBC Category. Accordingly, top 06 candidates have been provisionally shortlisted, as specified at Point No. 2 under (A) of Document F. No. NITD/01/Admn/606/2025–26 dated 12.12.2025.

Accordingly, the above-mentioned candidate has been provisionally shortlisted for the Proficiency Test scheduled to be held on 20.03.2026 (FN).

The above list is provisional in nature and may be subject to change upon receipt and examination of representations, if any, against the provisional answer key. ***In case the \* marked candidates could not submit the valid OBC-NCL certificate withing the prescribed timeline, the next candidate(s) in merit shall be provisionally shortlisted and called for the proficiency test.***

The selection of candidates shall be subject to meeting all the eligibility criteria and successful verification of documents.

Candidates are requested to regularly visit the Institute website for further updates and notifications.

This issues with the approval of the Competent Authority.

Sd/-  
(Registrar, NIT Delhi)