

# PUNJAB PUBLIC SERVICE COMMISSION

**Competitive Examination (January-2018) for Recruitment of Lecturer Mould Designs  
in the Department of Technical Education & Industrial Training, Govt. of Punjab**

**READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.**

**Candidate's Name** \_\_\_\_\_

**Father's Name** \_\_\_\_\_

**Date of Birth**        

DD                  MM                  YYYY

**Category Code\***   

(\*as given in the admit card)



**OMR Response Sheet No.** \_\_\_\_\_

**Roll No.** \_\_\_\_\_

**Booklet No.**

**Candidate's Signature** (Please sign in the box)

## INSTRUCTIONS

<p>1. The candidate shall NOT open this booklet till the time told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant columns (other than the columns related to marking responses to the questions) of the Optical Mark Reader(OMR) response sheet, supplied separately</p>	<p>9. The candidates shall be responsible to ensure that the responses are marked in correct manner and any adverse impact due to wrong marking of responses would be the responsibility of the respective candidate. The following are some of the <b>examples of wrong marking</b> of responses on the OMR response sheet.</p> 
<p>2. <b>Use only blue or black ball point pen</b> to fill the relevant columns on this page. Use of fountain pen may leave smudges which may make the information given by the candidate here illegible.</p> <p>3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible.</p>	<p>10. The candidates, when allowed to open the question paper booklet, are advised to check the booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should immediately bring this fact to the notice of the invigilation Staff and obtain a booklet of the same series as this one.</p>
<p>4. The candidate must fill all the columns given above on this page and sign at the appropriate place.</p> <p>5. <b>Each candidate is required to attempt 100 questions in 120 minutes</b>, except for orthopaedically/visually impaired candidates, who would be given 40 minutes extra, by marking correct responses on the OMR sheet which would be supplied separately to the candidates</p>	<p>11. The serial number of the new booklet should be entered in the relevant column of the OMR. The candidate should request the Invigilation Staff to authenticate the change in serial number of question booklet by obtaining the initials of the Staff on the corrected serial number of the question booklet</p>
<p>6. <b>The candidate must write the following on the OMRs sheet:</b>                  (a)Serial number of OMR sheet supplied to him/her for marking the responses to the questions.                  (b)Serial number of the question booklet                  Failure to do so may lead to cancellation of candidature or any other action which the Commission may deem fit.</p>	<p>12. The question paper booklet has 15 pages.</p> <p>13. <b>Each question shall carry three marks.</b></p>
<p>7. <b>The candidate should darken the appropriate response to the question by completely darkening the appropriate circle/oval</b> according to his/her choice of response i.e. a, b, c or d in the manner shown in the example below.</p> <p style="text-align: center;">                 a                  b                  c                  d   </p>	<p>14. <b>There are four options for each question and the candidate has to mark the most appropriate answer on the OMR response sheet using blue or black ball point pen.</b></p>
<p>8. Partly darkening the circle/oval on the OMR response sheet or using other symbols such as tick mark or cross would not result in evaluation of the response as the OMR scanner can only interpret the answers by reading the darkened responses in the manner explained in preceding paragraph. Darkening more than one circle/oval as response to a question shall also be considered as wrong answer.</p>	<p>15. <b>There is no negative marking</b> for wrong answers or questions not attempted by the candidate.</p>

1. Find the missing term:

0, 6, 24, 60, 120, 210, ?

- (a) 240
- (b) 290
- (c) 336
- (d) 504

2. Find the missing term:

1, 5, 13, 25, 41, ?

- (a) 51
- (b) 57
- (c) 61
- (d) 63

3. Find the missing term:

4, 12, 36, 108, ?

- (a) 144
- (b) 216
- (c) 304
- (d) 324

4. In a certain code, TEACHER is written as VGCEJGT. How is CHILDREN written in that code?

- (a) EJKNEGTP
- (b) EGKNFITP
- (c) EJKNFGTO
- (d) EJKNFTGP

**Read the following information carefully and answer the Questions No. 5 to 8 given below:**

Prashant Arora has three children – Sangeeta, Vimal and Ashish. Ashish married Monika, the eldest daughter of Mr. and Mrs. Roy. The Roys married their youngest daughter to the eldest son of Mr. and Mrs. Sharma, and they had two children named Amit and Shashi. The Roys have two more children, Roshan and Vandana, both elder to Veena. Sameer and Ajay are sons of Ashish and Monika. Rashmi is the daughter of Amit.

5. What is the surname of Rashmi?

- (a) Sharma
- (b) Roy
- (c) Arora
- (d) Cannot be determined

6. How is Sameer related to Monika's father?
- (a) Grandson
  - (b) Son
  - (c) Cousin
  - (d) Son-in-law
7. What is the surname of Sameer?
- (a) Roy
  - (b) Sharma
  - (c) Arora
  - (d) Cannot be determined
8. How is Mrs. Roy related to Ashish?
- (a) Aunt
  - (b) Mother-in-law
  - (c) Mother
  - (d) Sister-in-law
9. I am facing east. I turn  $100^\circ$  in the clockwise direction and then  $145^\circ$  in the anti clockwise direction. Which direction am I facing now?
- (a) East
  - (b) North-east
  - (c) North
  - (d) South-west
10. Rohan walks a distance of 3 km towards North, then turns to his left and walks for 2 km. He again turns left and walks for 3 km. At this point he turns to his left and walks for 3 km. How many kilometers is he from the starting point?
- (a) 1 km
  - (b) 2 km
  - (c) 3 km
  - (d) 5 km
11. Who among the following is CEC (Chief Election Commissioner) of India?
- (a) A K Jyoti
  - (b) Nasim Zaidi
  - (c) H S Brahma
  - (d) V S Sampath
12. Which of the following is the highest mountain peak of India?
- (a) Mount Everest
  - (b) Nanga Parbat
  - (c) Kanchenjunga
  - (d) Nanda Devi

13. Who among the following has been appointed as Chairman of 15<sup>th</sup> Finance Commission?
- (a) N K Singh
  - (b) Urjit Patel
  - (c) Amrtya Sen
  - (d) Ashok Lahiri
14. 'Dandi March' marked the beginning of which of the following movements?
- (a) Non-cooperation movement
  - (b) Civil Disobedience movement
  - (c) Quit India movement
  - (d) Champaran Satyagraha
15. Who among the following was recently crowned as Miss World?
- (a) Shubhangi Swaroop
  - (b) Manushi Chillar
  - (c) Priyanka Bhatt
  - (d) Stephanie Hill
16. Who among the following is the Governor of RBI (Reserve Bank of India)?
- (a) Urjit Patel
  - (b) Raghuram Rajan
  - (c) C Rangarajan
  - (d) Bimal Jalan
17. Who among the following wrote 'Loona', a verse play based on ancient legend of Puran Bhagat?
- (a) Amrita Pritam
  - (b) Gurdial Singh
  - (c) Nanak Singh
  - (d) Shiv Kumar Batalvi
18. Who among the following wrote the book 'Gitanjali'?
- (a) Rabindra Nath Tagore
  - (b) Bankim Chandra Chatterjee
  - (c) Dadabhai Naoroji
  - (d) B.G. Tilak

19. Match the following:

- |                  |              |
|------------------|--------------|
| A. Jeff Bezos    | 1. Microsoft |
| B. Satya Nadella | 2. Amazon    |
| C. Larry Page    | 3. Alphabet  |
| D. Indra Nooyi   | 4. Pepsi     |

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(a)	1	2	4	3
(b)	2	1	3	4
(c)	1	2	3	4
(d)	3	4	2	1

20. Who introduced the Permanent Settlement of 1793?

- (a) Robert Clive
- (b) Cornwallis
- (c) John Shore
- (d) Philip Francis

21. Arrange the layers of the atmosphere in order of increasing altitude

- (a) Troposphere, stratosphere, mesosphere, thermosphere
- (b) Mesosphere, stratosphere, thermosphere, troposphere
- (c) Troposphere, stratosphere, thermosphere, mesosphere
- (d) Thermosphere, mesosphere, stratosphere, troposphere

22. The gradual enrichment of lakes is known as

- (a) Exfoliation
- (b) Eutrophication
- (c) Denudation
- (d) Ecological succession

23. The Salal Project is on which river ?

- (a) Jhelum
- (b) Chenab
- (c) Beas
- (d) Satluj

24. Who is the author of *Ain-i-Akbari*?

- (a) Akbar
- (b) Abul Fazl
- (c) Firdausi
- (d) Todarmal

25. The Chairman of the Public Accounts Committee of the Parliament is appointed by
- (a) Speaker of Lok Sabha
  - (b) Prime Minister of India
  - (c) President of India
  - (d) Chairman of Rajya Sabha
26. “Swaraj is my birth right and I shall have it.” This is attributed to
- (a) Gandhi
  - (b) Tilak
  - (c) Nehru
  - (d) Vivekananda
27. Mahatma Gandhi was associated with which of the following newspapers?
- (a) The Hindu
  - (b) Young India
  - (c) The Times of India
  - (d) The Tribune
28. The members of the committees of Parliament are
- (a) Nominated by the leaders of the various parties in the Parliament
  - (b) Nominated by the prime minister
  - (c) Appointed by the speaker or elected by the House from amongst persons who are not members of Parliament
  - (d) Appointed by the speaker or elected by the House from amongst its own members
29. Which of the following islands has been named Abdul Kalam Island?
- (a) Strait Island
  - (b) Wheeler Island
  - (c) Sriharikota
  - (d) Great Nicobar
30. Who is the creator of the iconic Rock Garden?
- (a) Master Tara Singh
  - (b) Ms. Amrita Pritam
  - (c) Kaptan Singh Solanki
  - (d) Nek Chand
31. The hexagonal runner is basically a double trapezoidal runner, where two halves of the trapezium meet together at parting surface. The cross section area of this type is
- (a) about 12% of round runner
  - (b) about 22% of round runner
  - (c) about 32% of round runner
  - (d) about 82% of round runner

32. -----of a mould are those portions of both mould plates, adjacent to the impressions, which butt together to form a seal and prevent the loss of plastic material from the impression.
- (a) The mould platen surface
  - (b) The parting surface
  - (c) The mould assembly surface
  - (d) None of these
33. The blowing and stretching are performed in stretch blow moulding with the help of a -----
- (a) PET stretch rod.
  - (b) Telescopic stretch rod.
  - (c) Blown pin
  - (d) Perform
34. -----is an indentation or projection on a moulded part which makes ejection from the simple two part mould almost impossible.
- (a) Undercut
  - (b) Side wall
  - (c) Extractor
  - (d) All of these
35. The advantage of \_\_\_\_\_ method over the rotating threaded core designs is that it eliminates the need for complex unscrewing mechanism.
- (a) Inserts
  - (b) collapsible core
  - (c) core pin
  - (d) all of these
36. A taper applied to the faces of the part that prevent them from being parallel to the motion of the mould opening is called \_\_\_\_\_
- (a) Undercut
  - (b) Radii
  - (c) Boss
  - (d) Draft
37. Guide Bush is generally positioned in the \_\_\_\_\_ half of the mould.
- (a) Fixed
  - (b) Moving
  - (c) Fixed & moving
  - (d) None of above
38. Small pharmaceutical bottles with accurate neck finish is produced by \_\_\_\_\_ Process.
- (a) Injection Moulding
  - (b) Extrusion Blow Moulding
  - (c) Injection Blow Moulding
  - (d) Intermittent Blow Moulding

39. The Period requires to harden the thermosetting material to partial or complete polymerization is called \_\_\_\_\_
- (a) Cure Time
  - (b) Boiling Time
  - (c) Suck Back Time
  - (d) All of the above
40. Ideal angle of Finger Cam in the mould is \_\_\_\_\_
- (a)  $10^\circ$  to  $25^\circ$
  - (b)  $25^\circ$  to  $40^\circ$
  - (c)  $5^\circ$  to  $30^\circ$
  - (d)  $10^\circ$  to  $50^\circ$
41. \_\_\_\_\_ Venting is added to areas inside the cavity containing deep draws and flat surfaces.
- (a) Cavity
  - (b) Parting Lines
  - (c) Slotted
  - (d) Pin Hole
42. Rotational speed of major axis in rotational moulding should be slow & it should not be more than
- (a) 100 rpm
  - (b) 85 rpm
  - (c) 60 rpm
  - (d) 75 rpm
43. \_\_\_\_\_ type of actuation system is used for components having undercut which requires more delay period
- (a) Finger cam actuation
  - (b) Cam track actuation
  - (c) Dog leg actuation
  - (d) None of these
44. This split core may be moved forward in a \_\_\_\_\_.
- (a) Parallel plane or an angled plane
  - (b) Straight plane or an angled plane
  - (c) Perpendicular plane or an angled plane
  - (d) None of the above
45. To provide the rotary motion an unscrewing unit is fitted behind the moving mould plate in place of the conventional ejector unit is called as \_\_\_\_\_.
- (a) Stripper plate assembly
  - (b) Stack mould
  - (c) Unscrewing mould
  - (d) Collapsible core assembly



46. The -----contains a heated runner manifold block, insulated from the rest of the mould keeps the runner permanently in melted condition.
- (a) Hot runner mould
  - (b) Cold runner mould
  - (c) Stack mould
  - (d) All of the above
47. What type of material is recommended when the nozzle and gate area require higher thermal conductivity and excellent wear properties/
- (a) Copper alloys
  - (b) Titanium alloys
  - (c) Tungsten carbide
  - (d) Solidified plastic
48. Relief of parting surfaces the land width, i.e. the distance between the impression and the relief, is normally made -----depending on the shape and complexity of the impression.
- (a) between 20 mm to 25 mm
  - (b) between 5 mm to 25 mm
  - (c) between 10 mm to 25 mm
  - (d) between 25 mm to 55 mm
49. In a general retainer plates are within -----thickness range
- (a) 70 mm to 80 mm
  - (b) 18 mm to 19 mm
  - (c) 7mm to 23 mm
  - (d) 7mm to 13mm
50. The main purpose of -----is for the ejection of very slender parts, such as ribs and other projections, which cannot satisfactorily ejected by the standard type of ejector pin.
- (a) Blade ejector
  - (b) Sleeve ejector
  - (c) Pin ejector
  - (d) None of the above
51. Claming force in Compression moulding is calculated by \_\_\_\_\_
- (a) Claming force = number of impression x Compression pressure of plastic material
  - (b) Claming force = Projected area of moulding x Compression pressure of plastic material
  - (c) Claming force = number of cavities x Compression pressure of plastic material
  - (d) None of the above

52. Assuming that NIL effect of outside atmosphere conditions on transfer mould, with high pressure transfer of material \_\_\_\_\_.
- (a) Cure time is shorter in Transfer Moulding
  - (b) Cure time is more in Transfer Moulding
  - (c) Cure time is two times in shorter in Transfer Moulding
  - (d) None of the above
53. \_\_\_\_\_ is a shallow recess or hole incorporated in the design to permit entrapped air or other gases to escape freely.
- (a) Cooling Holes
  - (b) Sprue
  - (c) Vent
  - (d) All of the above
54. The height of a rib should be limited to less than \_\_\_\_\_ its thickness
- (a) 4 Times
  - (b) 3 Times
  - (c) 1 Time
  - (d) Equal
55. The amount of material that the machine can bring per hour to moulding temperature may be expressed in
- (a) Shot Weight
  - (b) Plasticizing Capacity
  - (c) Shot capacity
  - (d) All of the above
56. In thermoforming plastic sheet heated to the –
- (a) Melting point
  - (b) Sag point
  - (c) Tg –point
  - (d) None of the above
57. If production runs are very short in thermoforming \_\_\_\_\_ moulds is preferred.
- (a) Wood
  - (b) Metal
  - (c) Sand
  - (d) None of the above
58. The Cavity area should be \_\_\_\_\_ the Pot area in compression mould
- (a) Greater than
  - (b) Less Than
  - (c) Equal
  - (d) None of the above

59. The recommended Runner in various transfer Mould is \_\_\_\_\_
- (a) Half round
  - (b) Full round
  - (c) Trapezoidal
  - (d) Both b & c
60. \_\_\_\_\_ should be provided in plastic Product to increase its strength and rigidity
- (a) Boss
  - (b) Ribs
  - (c) Draft
  - (d) Holes
61. \_\_\_\_\_ can be defined as a form of programmable automation in which the process is controlled by numbers, letters and symbols.
- (a) Numerical control
  - (b) Tape Reader
  - (c) Floppy Disk
  - (d) Machine Tool
62. Kirksite alloy is used for \_\_\_\_\_ Mould
- (a) Injection
  - (b) Transfer
  - (c) Blow
  - (d) Compression
63. The heat rod is used for.....
- (a) Core Insert Cooling
  - (b) Cavity Insert Cooling
  - (c) Integer Cavity
  - (d) All of the above
64. A three plate mould consists of.....
- (a) Single daylights
  - (b) Two daylights
  - (c) Three daylights
  - (d) Four daylights
65. Injection moulding becomes \_\_\_\_\_ when a specifically designed insert is nested in the mould before the molten plastic is injected
- (a) Compression moulding
  - (b) Extrusion moulding
  - (c) Blow moulding
  - (d) Insert moulding

66. Causes uneven bending; Twisting etc on account of differential cooling, differential shrinkage, or non uniform freezing of melt in the mould can cause these conditions in the moulded part.
- (a) Shrinkage
  - (b) Flash
  - (c) Sink marks
  - (d) Warpage
67. The Boolean operators - Union, Subtract and Intersect tools are found in the toolbar:
- (a) Modeling
  - (b) UCS
  - (c) Solids Editing
  - (d) UCS II
68. The helix angle of the extruder screw is usually\_\_\_\_\_
- (a) 18.7 degree
  - (b) 17.8 degree
  - (c) 16.8 degree
  - (d) 19.7 degree
69. In blow moulding, the \_\_\_\_\_ is the ratio of the mould cavity diameter to the parison diameter.
- (a) Cull
  - (b) Blow ratio
  - (c) Bulk Factor
  - (d) None of the above
70. \_\_\_\_\_ plastic injection moulding simulation software is used by designers to improve plastic part design & injection mould design.
- (a) Moldex3D
  - (b) Moldflow
  - (c) Solidworks Plastics
  - (d) All of the above
71. \_\_\_\_\_ provides the actuation and guiding function of the ejector plate
- (a) Bolster
  - (b) Sprue puller
  - (c) Stripper Plate
  - (d) Knockout rod

72. For cooling cylindrical core inserts of larger diameters.....
- (a) A coolant fluid is circulated inside the core insert
  - (b) An air pocket can be formed at the top of the chamber
  - (c) A multilevel cooling system is adopted
  - (d) The baffled hole system is adopted
73. This method of actuation is used when a greater split delay is required.
- (a) Finger cam actuation
  - (b) Dog leg cam actuation
  - (c) Cam track actuation
  - (d) Spring actuation
74. Locating ring required for -----
- (a) Alignment of the axes of the mould with the machine
  - (b) Guiding of the mould with the machine
  - (c) Locating of the mould with the machine
  - (d) Fitting of the mould with the machine
75. Material of the Guide Pillar is
- (a) EN-2A
  - (b) EN-24
  - (c) HcHcr
  - (d) P-20
76. \_\_\_\_\_ are used while cooling to control the dimensions of the extruded component.
- (a) Mould
  - (b) Die
  - (c) Jigs
  - (d) Water
77. Entrapped gases, by bare glass fiber, by the wrong combination of closing speed and the mould temperature, under cured regions causes\_\_\_\_\_.
- (a) Streaks
  - (b) Pecks
  - (c) Flash
  - (d) Blisters
78. Excessive\_\_\_\_\_ is often seen near sealing faces, out of vent grooves, or down ejector pins. It appears as thin or sometimes thick sections of plastic where it would not be on a normal part.
- (a) Sink marks
  - (b) Flash
  - (c) Weld line
  - (d) Bubble

79. Sprue, runner and gate are present in \_\_\_\_\_
- (a) Auto compression moulding
  - (b) Transfer moulding
  - (c) Hand compression moulding
  - (d) Rotational moulding
80. Theoretically, cooling time is proportional to the \_\_\_\_\_ of the heaviest part wall thickness is an injection moulded component.
- (a) Square
  - (b) Square root
  - (c) Cubic
  - (d) Cube root
81. The period required to harden thermosetting material to partial or complete polymerisation is called the \_\_\_\_\_.
- (a) Cooling time
  - (b) Breathing time
  - (c) Curing time
  - (d) Processing time
82. Self degating occurs in
- (a) Three plate mould
  - (b) Two plate mould
  - (c) Hand plate
  - (d) None of the above
83. A Parison is also called as a \_\_\_\_\_
- (a) Screw
  - (b) Pipe
  - (c) Preform
  - (d) Core pin
84. Flash type compression mould is used for \_\_\_\_\_ parts but result in higher materials losses.
- (a) Hollow
  - (b) Narrow
  - (c) Shallow
  - (d) Wide
85. The recommended type fit between Guide pillar & Guide bush is \_\_\_\_\_
- (a) H7/G6
  - (b) H7/G8
  - (c) H8/f7
  - (d) All of the above

86. Blow Mould is normally manufactured with\_\_\_\_\_ material.
- (a) Mild Steel
  - (b) Carbon Steel
  - (c) Copper
  - (d) Aluminium alloys
87. Cooling of deep slender core insert is achieved by:
- (a) By circulating the coolant fluid deeply inside
  - (b) Helical Channel design
  - (c) Holes drilled through the side wall
  - (d) Air pocket formed at the top of the chamber
88. It is used for the formation of projection in the side face of a moulding.
- (a) Side core
  - (b) Side cavity
  - (c) Split cavity
  - (d) Slender core
89. The process of heating and compressing the thermoset material in a mould is.....
- (a) Performs
  - (b) Injection moulding
  - (c) Degassing and breathing
  - (d) Compression moulding
90. In a transfer moulding, excessive flash occurred due to
- (a) Diameter of ejection pins too small
  - (b) Mould not closing satisfactorily
  - (c) Insufficient draft
  - (d) Inadequate venting
91. \_\_\_\_\_ is two or more polymers are extruded and joined together forming a single structure with multiple layers.
- (a) Multilayer extrusion
  - (b) Blow film extrusion
  - (c) Wire extrusion
  - (d) Pipe extrusion
92. In first angle projection, the object is imagined to be placed
- (a) Above H. P. and behind V.P
  - (b) Above H.P. and front V.P.
  - (c) Below H.P. and behind V.P.
  - (d) Below H.P. and front V.P.
93. \_\_\_\_\_ is discoloured line where two flow fronts meet.
- (a) Weld line
  - (b) Flash
  - (c) Voids
  - (d) Streaks

94. Which AutoCAD command will determine precisely the volume of a complex (or simple) 3D Solid part?
- (a) AREA
  - (b) MASSPROP
  - (c) VOLUME
  - (d) PART
95. When using the Rotate tool the angle of rotation is in the following direction:
- (a) Clockwise
  - (b) Anticlockwise
  - (c) The direction in which the cursor is moved
  - (d) There is no fixed rotation direction
96. Extruder output mainly depends on \_\_\_\_\_
- (a) Breaker plate & screen pack
  - (b) Screw speed & Die orifice
  - (c) Speed of take- off equipments
  - (d) Melt temperature
97. In Blow mould resin grades melt index range for HDPE is \_\_\_\_gm/10 mins.
- (a) <1 to 2
  - (b) >1 to 2
  - (c) <1 to 3
  - (d) <1 to 4
98. \_\_\_\_\_ material is most commonly used for making moulds for thermoforming
- (a) Wood
  - (b) Aluminium
  - (c) Mild steel
  - (d) Stainless steel
99. \_\_\_\_\_ is the injection moulding simulation software.
- (a) CATIA
  - (b) Moldex3D
  - (c) Pro-E
  - (d) Unigraphics
100. \_\_\_\_\_ is defined as the use of computer system to find the analytical solution for various engineering problems using different numerical methods.
- (a) CAM
  - (b) CIM
  - (c) CAE
  - (d) CAPP

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