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E-238

B. E. VI Semester (Main & Re-Exam) Examination– May, 2016

PRODUCTION PROCESS

Branch : Mech. Engg.

Time : Three Hours]

[Maximum Marks : 75

[Minimum Marks : 30

Note : Attempt *all* questions from **Section - A** (Objective type questions), *four* questions from **Section – B** (Short answer type questions) and *three* questions from **Section – C** (Long/Essay type questions).

SECTION – A [Marks : 1.5 × 10 = 15

(Objective Type Questions)

Note : Attempt *all* question.

1. (a) Define Co_2 Mould ?

   (b) Define chaplets ?

   (c) Define die casting ?

   (d) What is Tube drawing ?

   (e) What is TIG welding ?

   (f) What is UMP ?

   (g) Define Limit gauges.

   (h) Automobile Pistons are made by ..... .

P. T. O.

(i) Coining is the operation of ..... .

(j) Long wires are made by ..... .

SECTION – B

[Marks : 6 × 4 = 24

(Short Answer Type Questions)

Note : Attempt any *four* questions.

1. What is manufacturing process ? How will you classify manufacturing process ?

2. State the advantages and disadvantages of plaster Moulds ? What is Gypsum plaster ?

3. Explain and prove the Mechant's Circle diagram ?

4. How are skeleton patterns made ? What is the advantage of using such patterns ?

5. Write short notes on :

   (a) Welding rods

   (b) Fluxes

   (c) Gas flames

6. Explain various hot working and cold working processes ? Compare hot working and cold working process ?

SECTION – C

[Marks : 12 × 3 = 36

(Long Answer Type Questions)

Note : Attempt any *three* questions.

1. Describe the following welding methods and their specific applications :

   (a) TIG welding (b) MIG welding (c) Co_2 MIG Welding ? What do you know about Thermit welding ? What are it main advantages ?

2. Explain the different types of Jigs and fixtures with neat sketches ? What are the importance of limits and fits ?

3. What is pattern ? How does it differ from the actual product to be made from it ? How are the pattern classified ? Explain the use of a solid pattern ?

4. Enlist unconventional metal forming processes and briefly describe with neat sketches, working and application of explosive forming ?

5. Write short notes :

   (a) Bond formation

   (b) Design of gating system

   (c) Automation

   (d) Shearing

Total Printed Pages : 4

Roll No. .....

E-727

B. E. VI Semester (Main & Re-Exam) Examination, May – 2018

PRODUCTION PROCESS

Branch : ME

Time : Three Hours]

[Maximum Marks : 75
[Minimum Marks : 30

Note : Attempt *all* questions from Section-**A** (Objective Type Questions), *four* questions from Section-**B** (Short Answer Type Questions) and *three* questions from Section-C (Long/Essay Type Questions).

SECTION – A $1.5 \times 10 = 15$

(Objective Type Questions)

Note : Attempt *all* questions.

1. Upon which of the following parameters does the current intensity in arc welding depend ?

(a) Stability of arc

(b) Electrode diameter

(c) Thickness of parent metal

(d) Gap between the electrode and parent metal

2. Which of the following gases are used in TIG welding ?

(a) Helium and Neon

(b) Hydrogen and Oxygen

(c) Argon and Helium

(d) Carbon dioxide and Hydrogen

P. T. O.

3. In EDM, metal removal rate is proportional to :

(a) Frequency of charging
(b) Energy delivered in each spark
(c) Both (a) & (b)
(d) None of these

4. With increase in temperature of the molten material, the fluidity :

(a) Increases
(b) Decreases
(c) First increases then decreases
(d) First decreases then increases

5. Riser is designed so as to :

(a) Freeze after the casting freezes
(b) Freeze before the casting freezes
(c) Freeze at the same time as the casting
(d) Minimize the time of pouring

6. Blowhole, air inclusions and pinhole porosity are falls under the category of :

(a) Gas defects in casting
(b) Moulding material defects in casting
(c) Pouring material defects in casting
(d) Metallurgical defects in casting

7. The operation to reduce the cross-section of the work with increase in length is called as :

(a) Edging
(b) Fullering
(c) Bending
(d) Drawing out

8. In a unilateral system of tolerance, the tolerance is allowed on :

(a) One side of the actual size
(b) One side of the nominal size
(c) Both sides of the actual size
(d) Both sides of the nominal size

9. The castings produced by forcing molten metal under pressure into a permanent metal mould is known as :

(a) Permanent Mould Casting
(b) Slush Casting
(c) Die Casting
(d) Centrifugal Casting

10. Match the following according to the properties of moulding sand :

(A)	Cohesiveness	(i)	Ability of breaking the mould with little force
(B)	Adhesiveness	(ii)	Ability to with stand higher temperature without losing strength
(C)	Refractoriness	(iii)	Ability of bond formation of sand particles with other materials
(D)	Collapsibility	(iv)	Ability to form bond between sand particles

(a) A-(iii), B-(ii), C-(i), D-(iv)
(b) A-(ii), B-(i), C-(iii), D-(iv)
(c) A-(i), B-(iii), C-(iv), D-(ii)
(d) A-(iv), B-(iii), C-(ii), D-(i)

SECTION – B

$6 \times 4 = 24$

(Short Answer Type Questions)

Note : Attempt any *four* questions :

1. Enumerate the principal types of manufacturing process. What points should be considered for selecting a manufacturing process ?

2. State briefly unilateral system of tolerances covering the points of definition, application and advantages over the bilateral system.

3. Explain and prove the Merchant's theory of metal cutting.

4. What do you mean by the term 'casting' ? Explain briefly centrifugal costing method with its applications.

5. A steel plate 20 mm thick is to be rolled to 14 mm in a four high rolling mill having roll diameter 480 mm.

   (i) Determine the angle of bite, if yield stress is 120 MPa.

   (ii) If the given reduction is the maximum possible reduction, then determine the coefficient of friction.

6. In a sand costing process, a sprue of 10 mm base diameter and 250 mm height bads to a runner which fills a cubical mould cavity of 100 mm size. Determine the volume flow rate (mm^3/s) and the mould filling time (in seconds) ?

SECTION – C

$12 \times 3 = 36$

(Long Answer Type Questions)

1. State the advantages and disadvantages of Hot working of metals. Discuss any two Hot working processes.

2. Name and briefly explain the various equipment and principle used in gas welding. List the advantages and disadvantages of gas welding.

3. Which of the following casting shapes would have least solidification time ?

   (i) A sphere of diameter, D = 25 mm

   (ii) A cylinder with both diameter, d & height, h = 25 mm

   (iii) A cube with a length of side, l = 25 mm

4. What do you understand by the term Unconventional Machining Processes ? Explain briefly with a neat sketch the principle & working of Water Abrasive Jet Machining process method.

5. Write short-notes on :

   (a) Jigs & Fixtures

   (b) Toll life & Economics

   (c) Surface-Roughness

   (d) Automation

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E-950

B. E. VI Semester (Main & Re Exam) Examination, May – 2019

PRODUCTION PROCESS

Branch : ME

Time : Three Hours]

[Maximum Marks : 75

[Minimum Marks : 30

Note : Attempt ***all*** questions from *Section – A* (Objective type questions), ***four*** questions from *Section – B* (Short answer type questions) and ***three*** questions from *Section – C* (Long/ Essay type questions).

SECTION – A [Marks : 1.5 × 10 = 15

(Objective Type Questions)

Note : Attempt ***all*** questions of the following :

1. What is mean clearance ?

(a) Maximum size of hole minus maximum size of shaft

(b) Minimum size of hole minus minimum size of shaft

(c) Mean size of hole minus mean size of shaft

(d) Average of both size of shaft and hole

2. Why tolerances are given to the parts ?

(a) Because its impossible to make perfect settings

(b) To reduce weight of the component

(c) To reduce cost of the assembly

(d) To reduce amount of material used

P. T. O.

3. In pressure die costing, what is the minimum pressure that can be applied ?

(a) 50 kg/ cm^2 (b) 70 kg/ cm^2

(c) 60 kg/ cm^2 (d) 80 kg/ cm^2

4. Alloys of which of the following metal is not used for hot chamber die casting ?

(a) Tin (b) Zinc (c) Lead (d) Iron

5. Which of the following factors is not considered in regards with directional solidification ?

(a) Riser diameter (b) Riser location

(c) Riser height (d) Metal to be casted

6. Which of the following components is mainly manufactured by performing metal forging ?

(a) Piston (b) Connecting rod

(c) Engine block (d) Crank case

7. Which of the following metal farming processes performs squeezing out of material through a hole ?

(a) Forging (b) Drawing

(c) Rolling (d) Extrusion

8. During rolling process, the thickness of work piece squeezed is called what ?

(a) Shaft (b) Bore (c) Draft (d) Core

9. Which of the following is correct about chip thickness ratio 'r' ?

(a) $r < 1$ (b) $r = 1$

(c) $r > 1$ (d) None of the mentioned

10. Which of the following assumption is *not* valid for merchant circle diagram ?

(a) Continuous chips (b) Discontinuous chips

(c) Cutting edge remains sharp (d) No built up edge

SECTION – B

[Marks : 6 × 4 = 24

(Short Answer Type Questions)

Note : Attempt any *four* questions of the following.

1. Differentiate between Hole Basis System and Shaft Basis System.

2. Differentiate between soldering and brazing. Write their application also.

3. Explain briefly about Cupola process. How will you calculate the metal charge of a cupola in order that the produced casting can have a desired compositions ?

4. With neat sketch, explain elements of a gating system.

5. Explain the role of moisture in moulding sands.

SECTION – C

[Marks : 12 × 3 = 36

(Long Essay Type Questions)

Note : Attempt any *three* questions of the following.

1. Explain the principle of AJM. Mention some of the specific application and also discuss in detail about AJM process variables that influence the rate of material removal and accuracy in machining.

2. Explain the need for the development of unconventional machining process by considering any four simple cases of your own interest.

3. What is "Directional Solidification" of casting ? Explain it with the help of a diagram, and also discuss casting defects.

4. Write short notes on any *three* :

(a) Types of rolling mills

(b) 3-2-1 principles in jigs

(c) Thermil welding

(d) Gating system elements
