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...E/PE/AUE-N... ...)/SEM-4/ME-403/2013

201...

...Y MANUFACT... ...RING PROCESSES

...3 Hours

Full Marks : 70

...figures in the margi... ...dicate full marks.

...are required to give th... ...answers in their own words as far as ... ...cticable.

GROUP ... A

(Multiple Choice T... ...e Questions)

...hoose the correct alternative... ...or any *ten* of the following :

$10 \times 1 = 10$

...Lower part of the mouldi... ...flask is called

a) cope

b) drag

c) pouring basin

d) cavity.

[Turn over

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ii) Shrinkage of cast iron on solidification is nearly

a) 1%

b) 5%

c) 6.5%

d) 13%.

iii) Core prints are provided to

a) form trade mark of company on castings

b) produce casting with specific surface design

c) form seat to support and hold the core

d) direct the flow of molten material during pouring

iv) In electric resistance welding, voltage required f heating is

a) 1 to 5 volts

b) 6 to 10 volts

c) 11 to 20 volts

d) 50 to 100 volts.

v) Carburizing flame is used to weld

a) steel, cast iron, copper, aluminium etc.

b) brass and bronze

c) hard surfacing materials such as stellite

d) all of these.

ount of heat generation in arc welding is

irectly proportional to the resistance

nversely proportional to the resistance

irectly proportional to current

nversely proportional to time.

n-consumable electrode is

tungsten

b) carbon

c) graphite

d) carbon or graphite.

Preheating during welding (steel being the base material) is desirable when carbon equivalent is

a) less than 0.4

b) equal to 0.4

c) less than 0.5

d) more than 0.5.

Cold rolling is preferred to hot rolling due to

a) less rolling force

b) less operating cost

c) higher production rate

d) higher surface finish.

x) Hot working operation is carried out at

a) above recrystallisation temperature

b) below recrystallisation temperature

c) near plastic stage temperature

d) above room temperature.

xi) In investment casting patterns are made of

a) plaster

b) plastics

c) wax

d) none of these.

xii) The function of welding electrode coating is to

a) stabilize the arc

b) reduce the spatter

c) perform metallurgical refining operations

d) all of these.

xiii) Fuller, punch, swages, sledge, flatter are the tools use in

a) Rolling

b) Forging

c) Welding

d) None of these.

...ic chaplets are used in a mold to

... enhance directional solidification

... increase the velocty of liquid metal

... support the core

... all of these.

... type of sand sprinkled on the pattern & at the ...ary between the two mold boxes to prevent the ...herence of the molding sand, is called

a) parting sand

b) facing sand

c) backing sand

d) all of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

...cuss the concept of straight and reverse polarity in arc ...ding with neat sketches.

...Describe with the help of sketches the three types of oxy-...tylene flames.

...What is Grain Fineness Number (GFN) and how is it ...experimentally determined ?

5. Name the different pattern allowances and discuss their need.

6. Compare the relative advantages and disadvantages of hot and cold working.

7. In a single flat rolling operation a 400 mm wide steel strip having thickness of 10 mm is reduced to 8 mm by using rolls of diameter 600 mm. Find the contact length of the roll strip with the work piece.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

8. a) Define green strength and dry strength of molding sand.

   b) Draw and describe a cupola.

   c) What are different casting defects ? Describe any two of them. 5 + 5 + 2 + 3

9. a) Explain pressure die casting and their application.

   b) Explain different types of centrifugal casting process.

   c) Explain plasma arc welding and ultrasonic welding in brief. 4 + 4 + 7

...fferentiate between welding, brazing and soldering.

...ith the aid of sketch explain the process of TIG.

...plain with neat sketches the process of sub-merged **...c welding** process and its applications. 4 + 5 + 6

...hort notes on any *three* of the following : 3×5

...ntrifugal casting

...t and cold rolling

...ect of DCSP, DCRP and AC current on arc welding

...mith forging and drop forging.

Differentiate between Punching and Blanking with neat **sketch.**

b) **Write** down the principle of rolling showing sketches of **roll arrangement.**

c) **In a** rolling process, sheet of 25 mm thick is rolled to **20** mm thickness, roll is of diameter 600 mm and it **rotates** at 1000 rpm. What will be roll strip contact **length** ?

What is camber ? 4 + 6 + 4 + 1

Write down the principles of wire drawing with a neat **sketch.**

What are the common forging defects and the remedial **measures** to be taken ?

Why are clearance and shear angles provided in press **tool** punch ? 6 + 5 + 4