CollegeBoard

AP® Minecraft Exam
Thursday afternoon, May 30, 2019

SECTION II: Free Response

2019

I affirm that:

■ This exam is being administered on **Thursday afternoon, May 30, 2019**

■ I did not have advance knowledge of the free-response questions, nor did I open the Section II booklet before being instructed to do so by the proctor.

■ I will not take this exam booklet from the room, and will only discuss the free-response questions if the specific questions in the exam are released on the College Board website two days after the exam administration. If the questions in this exam are not released, I will not discuss them with anyone.

■ I understand that if I do not place my AP number label below, it may be impossible to identify this booklet as my own, which could delay or jeopardize my AP score.

Place AP Number Label Here

Furthermore, I understand and accept that my exam score may be canceled if I do not meet these conditions and initial here.

My Initials ⬚⬚⬚ _____

First M.I. Last   Date

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Form I
Form Code 4GBP2-S2

AP®

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MINECRAFT JAVA
SECTION II
Time—45 minutes
Number of questions—4
Percent of total score—60

Directions: Answer all four questions, which are weighted according to the point values indicated on the cover. The suggested times are about 11 minutes for answering each of Questions 1-2, about 7 minutes for answering Question 3, and about 16 minutes for answering Question 4. Credit depends on the quality of your solutions and explanations and on demonstrating that you know which Minecraft principles would be appropriate to apply in a particular situation.

Notes:

- All questions refer to the defaults of Minecraft version 1.12.2
- Assume vanilla gameplay (no modifications), unless otherwise indicated
- Assume no "cheats" granted in survival mode, unless otherwise indicated
- Assume that the player's ign is `steve`
- The designation "object" refers to any of the following:
    - I.   Entities that can be summoned through the `/summon` command.
    - II.   Items that can be obtained through the `/give` command.
    - III.   Blocks that can be placed through the `/setblock` command

1. Designing redstone circuits is an important part of Minecraft. Answer the following parts of this question about redstone circuits.
   a) Briefly identify how both of the following could limit the functionality of a redstone torch in a circuit.

      i)   Lag from block updates

      ii)   Robustness (update speed)

   b) Complete the last three rows of the following logic table, which shows the output (ON or OFF) for a logic gate given the inputs (ON or OFF) for A and B. The first two rows have already been correctly filled in.

Inputs (Across) Gates (Down)	A = ON B = ON	A = ON B = OFF	A = OFF B = ON	A = OFF B = OFF
NOT A	OFF	OFF	ON	ON
A AND B	ON	OFF	OFF	OFF
A OR B				
A NOR B				
A XOR B				

c) Using only the blocks listed below, draw two redstone clocks. On the left, draw a redstone clock with a **shorter** delay than the clock on the right. The clock must operate with no player interaction. Assume that all blocks are placed simultaneously.

You may use:
- Stone blocks (opaque)
- Redstone dust
- Redstone torches
- Redstone repeaters

<u>Left (shorter delay)</u>   <u>Right (longer delay)</u>

d) Identify and explain one potential use for a block update detector (BUD).

2. Mobs (short for "mobiles") are a key component to Minecraft. Answer the following parts of this question about mobs.
   a) Explain why the zombie pigman is considered neutral, whereas the regular zombie is considered hostile.

   b) From the list of 8 mobs below, identify which are **passive**, which are **neutral**, and which are **hostile**.
      - Cave Spider
      - Cow
      - Creeper
      - Rabbit
      - Slime
      - Spider
      - Villager
      - Wolf

Passive   Neutral   Hostile

c) Drops (also called loot) are items that appear when some mobs are killed. For each mob below, indicate **two** common drops. *(Note that armor and tools are **not** common drops because they are dropped less than 10% of the time).*

   i)   Iron golem

   ii)   Sheep

   iii)   Spider

   iv)   Skeleton

   v)   Witch

d) Briefly describe how to build an enderman experience farm in the end. Your farm must function **without** players having to look at the endermen.

3. For each of the following four parts, circle the three correct properties of the given block/item in part (i) and show a crafting recipe for the respective item in the window provided in part (ii). Assume in part (ii) that all items are available, except when otherwise indicated.

An example is shown below:

EXAMPLE:

Item/Block: Torch

(i) Item is dropped when the block is punched.

YES   NO

Block gives off light.

YES   NO

Block is flammable.

YES   **NO**

(ii) Craft a torch, given that coal is not available.

	Charcoal	
	Stick	

(a) Item/Block: <u>Brewing Stand</u>

    (i)   Item is dropped when the block is mined with a wooden pickaxe.

                YES   **NO**

            Block is opaque (does not let light through).

                YES   **NO**

            Up to 64 of the item can be stacked in a single inventory slot.

                YES   **NO**

    (ii)   Craft a brewing stand.

(b) Item/Block: <u>Sign</u>

    (i)   Item is dropped when block is mined with a wooden shovel.

                YES   **NO**

            Block is flammable.

                YES   **NO**

            Up to 64 of the item can be stacked in a single inventory slot.

                YES   **NO**

    (ii)   Craft a sign.

(c) Item/Block: <u>Dispenser</u>

   (iii)   Block breaks if the block below it is broken.

               YES   **NO**

        Block is dropped when mined with a wooden shovel.

               YES   **NO**

        Block can make a noise when activated by redstone.

               YES   **NO**

   (iv)   Craft a dispenser.

(d) Item/Block: <u>Iron Boots</u>

   (iii)   Item can be dyed.

               YES   **NO**

        Item can be burned in a furnace.

               YES   **NO**

        Item can be obtained through trading with a villager.

               YES   **NO**

   (iv)   Craft iron boots.

4. According to the official Minecraft wiki, "Being a sandbox game, there is no true end to Minecraft. However, it is possible to 'complete' the game upon killing the ender dragon".

Minecrafters debate what the hardest task in Minecraft is. Consider the following tasks:
- Killing the ender dragon
- Building a haste II beacon

Write a short essay in which you develop your own position on which of the two tasks above is harder in survival Minecraft: killing the ender dragon or building a haste II beacon. Use appropriate, specific evidence to illustrate and develop your position.

STOP

END OF EXAM

**IF YOU FINISH BEFORE TIME IS CALLED,
YOU MAY CHECK YOUR WORK ON THIS SECTION.**

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THE FOLLOWING INSTRUCTIONS APPLY TO THE COVERS OF THE SECTION II BOOKLET.

- MAKE SURE YOU HAVE COMPLETED THE IDENTIFICATION INFORMATION AS REQUESTED ON THE FRONT <u>AND</u> BACK COVERS OF THE SECTION II BOOKLET.

- CHECK TO SEE THAT YOUR AP NUMBER LABEL APPEARS IN THE BOX ON THE FRONT COVER.

- MAKE SURE YOU HAVE USED THE SAME SET OF AP NUMBER LABELS ON <u>ALL</u> AP EXAMS YOU HAVE TAKEN THIS YEAR.

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2019

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

At a Glance

Total Time
45 minutes

Number of Questions
4

Percent of Total Score
60%

Writing Instrument
Either pencil or pen with black or dark blue ink

Electronic Device
None allowed

Suggested Time
Approximately
11 minutes for question 1
11 minutes for question 2
7 minutes for question 3
16 minutes for question 4

Weight
Approximate weights:
Question 1: 26%
Question 2: 26%
Question 3: 16%
Question 4: 32%