



Beer Judge Certification Program

5115 Excelsior Blvd, # 326
St. Louis Park, MN 55416

www.bjcp.org

Exam Cover Sheet and Instructions

PARTICIPANT CODE NUMBER XXXXXXXXXX

Written Proficiency Exam: Answer the questions completely, but don't be verbose. The challenge is to organize your thoughts and express them well in the 90 minute time period. For a passing score, beer style descriptions must include the aroma, appearance, flavor, and mouthfeel descriptions as in the BJCP Style Guidelines. If time permits, for maximum credit, a more complete answer should consider the history of the style, geography, commercial examples, style parameters, unique ingredients, and fermentation techniques and conditions. When a question asks for a classic commercial example of a style the correct answer is one of the styles listed in the BJCP Style Guidelines.

Beer Judging Exam: Judge each beer as if you would at a competition, providing complete and accurate descriptions of the aroma, appearance, flavor and mouthfeel. If there are stylistic or technical errors, provide constructive feedback to the brewer.

Both Exams:

- Do NOT write your name on your answer sheets.
- Only write on one side of the paper, back sides are not copied.
- Written exam:
 - Number all pages (1 of n, 2 of n, etc.).
 - Start each question on a new sheet of paper.
- Write firmly (with dark pencil/ink) to facilitate photocopying of your exam.
- Do not write to the very edge of the page since that will make it difficult to photocopy the answer sheets and portions of your answer may not get to the graders.
- Please write neatly; handwriting is meant to be read, and not to be solved.
- Manage your time carefully!

GOOD LUCK!



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PARTICIPANT CODE: [REDACTED]

SECTION 1 (BJCP/ETHICS/JUDGING PROCESS)

Judging Process & Ethics

The questions in Section 1 are remedial for a BJCP judge eligible to take this exam. Any judge National or higher judge should know this stuff. It should take almost no time to answer these questions. **You get no additional credit for getting the answers correct but you can lose up to 10% of your essay score if you get them all wrong.**

For the following 20 questions circle the "T" if the statement is true or circle the "F" if the statement is false.

1. T F 82. If judges require more pours than one bottle to judge an entry, the "head" judge should ask the steward to request a second bottle from the cellar master.
2. T F 38. It is not necessary for scores produced by the judges on a panel to be within seven points (or less if directed by the competition director) or each other.
3. T F 34. Judges should complete the evaluation of each entry before moving on to the next.
4. T F 33. Spicy or greasy foods should be avoided prior to a judging event because they can reduce a judge's sensitivity to the aromas and flavors of beer.
5. T F 86. Entrants may contact the judge, the competition director, or their BJCP Regional Representative if they are dissatisfied with any aspect of their scoresheets.
6. T F 61. If rushed, it's acceptable to write only 1-2 comments on a scoresheet as long as the numeric score is filled out.
7. T F 9. The "head" judge at a table should try to tutor apprentice or lower-rank judges if time permits.
8. T F 89. When your flight has finished, it is acceptable to visit other flights still in progress to see how beers you have entered are faring.
9. T F 30. Beers must be evaluated in the sequence specified on the flight sheet.
10. T F 48. A judge must disqualify an entry if the bottle has raised lettering or the cap has identifying marks.
11. T F 31. If you have eaten spicy or greasy food within a few hours prior to judging, you should use mouthwash or antiseptic rinse before judging.
12. T F 65. If the beers are not served at the proper temperature, judges should work with the competition staff to resolve the problem.
13. T F 85. It is acceptable to request a second bottle to give the entry a fair chance at an accurate judging if a beer is a "gusher" or tastes infected.
14. T F 12. The "head" judge at a table should fill out Cover Sheets for beers in his or her flight as directed by the competition management.
15. T F 24. Because entries cannot have any identifying marks, it is OK for a judge to judge beers in a category he or she has entered.
16. T F 45. It is acceptable to remove offensive smelling entries from the judging table after they have been evaluated.



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- 17 F 42. When judging, it is important to evaluate entries quickly and also complete the score sheets thoroughly and completely.
- 18 F 87. When your flight has finished, you should avoid having conversations that might distract other judges who have not yet finished their flights.
- 19 F 72. Scores should not be assigned to the aroma section immediately because the entry's aroma profile may change over time.
- 20 F 50. Snide or rude comments are unacceptable on scoresheets.



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SECTION 2 (STYLES/BREWING TECHNIQUES)

Each of the following questions is worth 20% of the total exam score.

1. For each of the three styles **Brown Porter**, **Dry Stout**, and **Robust Porter** provide a statement describing the styles as well as the differences and similarities between the styles by addressing each of the following topics:

40%	Describe the aroma, appearance, flavor, and mouthfeel of each style as in the BJCP Style Guidelines.
25%	Identify at least one aspect of the ingredients (malts, hops, water chemistry) or background information (history, fermentation techniques and conditions, or serving methods) that distinguishes each style.
10%	For each of the styles name at least one classic commercial example as listed in the BJCP Style Guidelines.
25%	Describe the similarities and differences between the three styles.

2. Provide a complete **ALL-GRAIN** recipe for a **German Pilsner (Pils)**, including:

10%	Target statistics (starting specific gravity, final specific gravity, and bitterness in IBUs or HBU/s) and color (as SRM or a textual description of the color)
20%	Batch size, ingredients (grist, hops, water, and yeast) and their quantities.
35%	Mashing, boil, fermentation, packaging, and other relevant brewing procedures.
35%	Explain how the recipe fits the style's characteristics for flavor, aroma, appearance, mouthfeel and other significant aspects of the style and describe how the ingredients and processes used impact this style.

3. For each of the three styles **American IPA**, **English IPA**, and **Imperial IPA** provide a statement describing the styles as well as the differences and similarities between the styles by addressing the following topics:

40%	Describe the aroma, appearance, flavor, and mouthfeel of each style as in the BJCP Style Guidelines.
25%	Identify at least one aspect of the ingredients (malts, hops, water chemistry) or background information (history, fermentation techniques and conditions, or serving methods) that distinguishes each style.
10%	For each of the styles name at least one classic commercial example as listed in the BJCP Style Guidelines.
25%	Describe the similarities and differences between the three styles.

4. Describe and discuss the following three beer characteristics: a) **acetaldehyde**, b) **cardboard**, and c) **fruitiness**. What causes them and how are they avoided and controlled? Are they ever appropriate, and if so, in what beer styles? Address the following topics:

30%	Describe each characteristic and how it is perceived.
40%	Identify the causes and controls for each characteristic.
30%	Identify appropriate/inappropriate styles.



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5. Discuss the three brewing techniques; a) **adding gypsum**, b) **fining**, and c) **kräusening**. How do they affect the beer? Address the following topics:

50%	Discuss each characteristic.
50%	Describe their effect on the finished beer.

① Brown Porter LOW ESTERS.

AROMA: MODERATE MALT w/ TOASTY, BREADY, LOW CARAMEL NOTES, LOW TO MODERATE HOPS.

APPEARANCE: COPPER TO BROWN. MODERATE OFF-WHITE TO TAN HEAD w/ MODERATE RETENTION. GOOD CLARITY BUT CAN BE OPAQUE.

FLAVOR: MODERATE MALT w/ TOASTY, BREADY, CARAMEL AND LOW EARTHY HOPS AND LOW TO MEDIUM LOW BITTERNESS. LOW TO MED-LOW ESTERS.

MOUTHFEEL: MEDIUM BODY AND MED-LOW TO MEDIUM CARBONATION.

CLASSIC ENGLISH STYLE ~~OR~~ HISTORICALLY BREWED IN THE MIDLANDS OF ENGLAND ~~AND~~. TRADITIONALLY FERMENTED IN YORKSHIRE SQUIRES ~~BEING UNDER~~ USING ENGLISH ~~OR~~ YEASTS WHICH GIVE UNIQUE ESTER PROFILE.

CLASSIC EXAMPLE → NEWCASTLE BROWN

DRY STOUT AROMA: MODERATE MALT w/ ~~SWEET~~ MALTY SWEETNESS AND ROASTED NOTES. LOW ^{ESTERS} HOP. LOW ESTERS.

APPEARANCE: DARK BROWN TO BLACK. MODERATE OFF-WHITE TO TAN HEAD THAT CAN BE QUITE DISTINCT w/ TIGHT SMALL BUBBLES IF SERVED USING NITROGEN MIX.

FLAVOR: MODERATE MALT w/ MALTY SWEETNESS AND ROASTED NOTES. LOW TO MED-LOW BITTERNESS AND LOW EARTHY HOP FLAVOR. LOW ESTERS. LOW DIRECTLY OK.

MOUTHFEEL: MED BODY TO MED-LOW BODY AND MED CARBONATION. LOW ASTRINGENCY OK.

CLASSIC IRISH STYLE MADE MOST POPULAR BY GUINNESS ~~OR~~. KNOWN FOR USE OF ROASTED BARLEY AND BEING SERVED ON NITROGEN / O₂ GAS BLEND.

CLASSIC EXAMPLE → GUINNESS ~~DRY~~ DRY IRISH STOUT

ROBUST PORTER AROMA: MODERATE MALT w/ MALT
 SWEET, CHOCOLATE, COFFEE AND LOW CARAMEL
 TRASTY, ROASTY, BREADY. LOW TO MODERATE
 EARTHY, FLORAL HOP ~~AROMA~~. LOW TO NO ESTERS.
 APPEARANCE: DARK BROWN TO BLACK. MODERATE
 OFF-WHITE TO TAN HEAD w/ MODERATE + PERSISTENT.
 GOOD CLARITY BUT CAN BE OPAQUE.
 FLAVOR: MODERATE MALT w/ MALT SWEET, CHOCOLATE,
 COFFEE AND LOW CARAMEL, TRASTY, ROASTY, BREADY.
 LOW TO MODERATE HOP AROMA - EARTHY, FLORAL
 w/ MODERATE BITTERNESS. LOW TO NO ESTERS.
 MOUTHFEEL - MODERATE BODY AND CARBONATION.

ANOTHER CLASSIC ENGLISH STYLE THAT HAS
 BEEN ADOPTED AND ~~MORPH~~ MORPHED TO A
 BIT BIGGER EXAMPLE IN THE US. DIFFERENT
 FROM OTHER PORTERS (OTHER THAN BALTIC) IN THAT IS
 A BIT BOLDER MALT AND HOP CHARACTER.
 CLASSIC EXAMPLE → MOUSE DROOL

COMPARISON

DRY STOUT AND BROWN PORTER ARE LOWER ALCOHOL
 THAN ROBUST PORTER AND ALSO HAVE A
 LOWER HOP PRESENCE.
 ROBUST PORTER CAN HAVE MORE CARAMEL NOTES
 DRY STOUT HAS A SIGNATURE RAST NOTE.
 ROBUST PORTER HAS MORE OF A CHOCOLATE
 AND BLACK PATENT PROFILE.

② GERMAN PILS ALL-GRAIN RECIPE

SG 1.050 FG 1.010

IBU 50

SRM 5

5 GALLON BATCH SIZE

10 LBS GERMAN PILSNER MALT (I LIKE
1.8L (WEGMANN))

20L TETNANG @ 60 MIN

10L TETNANG @ 15 MIN

10L TETNANG @ FLAME-OUT

GERMAN LAGER YEAST PITCHED @

1.5 million cells/mL / ° PLATO OR
~ A 3L STARTER

FAIRLY SOFT WATER ADJUSTED TO

750 ppm Calcium

< 20 ppm Mg

< 20 ppm Na

~ 50 ppm sulfate

< 20 ppm chloride

WATER HAS BEEN CARBON FILTERED OR
TREATED w/ CAMBION TABLETS TO REMOVE
IMPURITIES AND CHLORINE / CHLORAMINEMASHED w/ 1.5 Q/LIB OF WATER
AT 163F FOR A 150F SINGLE
INFUSION MASH ~~AND RAIL~~ FOR 90
MINUTES AND, IF POSSIBLE, RAISED
TO 168 FOR 10 MINS TO MASHOUT.RUN OFF ^{~ 7} ~~WATER~~ VIA SPARGING
AND RAIL FOR 60 MINS w/ A 1.25 G/HR
BOIL OFF RATE

AFTER BOIL COOL TO 48F AND PITCH YEAST LETTING IN RICE TO SOF OVER 48 HOURS. HOLD AT 50 F FOR 3 WEEKS AND IF DIACETYL DETECTED DO DIACETYL REST BY RAISING TEMP TO 60 F FOR 3 DAYS.

RACK ~~TO~~ CLEAN TO LAGERING VESSEL AND LOWER 2F A DAY TO ~32F AND HOLD FOR 6 WEEKS.

~~THE~~ RACK TO SERVING VESSEL AND FORCE CARB TO 2.5 VOLUMES WHICH IS ~13 PSI @ 40 F OR BOTTLE CONDITION W/ ~120 GRAMS OF CORN SUGAR.

BEER SHOULD SHOWCASE GERMAN PILSNER MALT (GRAINY, MALTY SWEET) AND GERMAN NOBLE HOPE (~~ESTER~~ HERBAL, FLORAL, EARTHY) W/ A VERY CLEAN FERMENTATION PROFILE THAT IS FURTHER CLEANED UP BY SOLID LAGERING (4+ WEEKS).

- ③ AMERICAN IPA: AROMA: LOW MALT - SWEET, ~~AND~~ VERY LOW CARAMEL, DAST, BREADY. HIGH TO VERY HIGH AMERICAN STYLE HOPS - CITRUSY, PINY, RESINY. LOW TO NO ESTERS. APPEARANCE: YELLOW TO ~~LOW~~ COPPER. MODERATE OFF WHITE HEAD w/ EXCELLENT RETENTION. GOOD TO EXCELLENT CLARITY BUT HIGH HOPPING CAN CAUSE SOME HAZE. FLAVOR: LOW MALT - SWEET w/ CARAMEL/TOAST/BREADY OR. ^{MAY} MODERATELY HIGH TO HIGH BITTERNESS. MODERATELY HIGH TO VERY HIGH AMERICAN STYLE HOP FLAVOR → CITRUSY, PINY, RESINY. LOW TO NO ESTERS. MOUTHFEEL → MEDIUM BODY AND CARBONATION. SOME ASTRINGENCY OR BUT SHOULD NOT BE OVERLY HARSH.

AN AMERICAN TAKE ON AN ENGLISH IPA. HOPPIER ALL AROUND AND A CLEANER FERMENT PROFILE AND LESS FORWARD MALT PROFILE. A SHOWCASE OF AMERICAN HOPS.

CLASSIC EXAMPLE → ~~BREAST POINT SWAMP~~
RUSSIAN RIVER BLIND PIG

ENGLISH IPA: AROMA: LOW TO MODERATE MALT w/ TASTY, BREADY, CARAMEL NOTES. MEDIUM TO MED-HIGH EARthy ENGLISH STYLE HOP AROMA. LOW TO MED-LOW ESTERS. APPEARANCE: GOLD TO COPPER. MODERATE OFF WHITE HEAD w/ EXCELLENT RETENTION. GOOD TO EXCELLENT CLARITY BUT MAY HAVE SOME POLYPHENOL HAZE FROM HOPS. FLAVOR: LOW TO MODERATE MALT w/ TASTY, BREADY, CARAMEL NOTES. MED TO MED-HIGH BITTERNESS AND EARthy, PURAL ENGLISH STYLE

HOPS: LOW TO MED-LOW ESTERS

MOUTH FEEL: MEDIUM BODY w/ MEDIUM TO MED-LOW CARB. MAY HAVE SOME ASTRINGENCY FROM HIGH HOPPING BUT SHOULD NOT BE HARSH.

CLASSIC ENGLISH STYLE ORIGINALLY DEVELOPED FOR LONG SEA VOYAGES TO INDIA SINCE HIGH ALCOHOL AND HOPPING ARE PRESERVATIVES.

CLASSIC EXAMPLE: ~~PA~~ FULLERS ~~IPA~~ IPA

IMPERIAL IPA: AROMA: LOW MALT SWEETNESS w/ LOW CARAMEL, PAST, BREADINESS OK. VERY TO AGGRESSIVE AMERICAN STYLE CITRUS, FRUITAL, PINKEY HOPS. LOW TO NO ESTERS.

APPEARANCE: GOLD TO COPPER. MODERATE O/P WHITE HEAD w/ EXCELLENT RETENTION DUE TO HOPS ~~level~~. GOOD TO EXCELLENT CLARITY. HIGH HOPPING CAN CAUSE SOME HAZE:

MOUTH FEEL: MEDIUM BODY AND CARBONATED. MAY HAVE SOME ASTRINGENCY DUE TO HOPPING LEVEL.

A BIGGER \rightarrow MORE ALCOHOL, MORE HOPS \rightarrow TAKE ON AN AMERICAN IPA. OFTEN USES SOME SUGAR TO MAKE SURE IT DRIVES OK.

CLASSIC EXAMPLE \rightarrow RUSSIAN RIVER PILNY THE ELDER

COMPARISON -

SIMILAR \rightarrow HIGH HOPPING RATES. GOOD HEAD AND RETENTION.

DIFFERENCES \rightarrow IMPERIAL IS HIGHER ALCOHOL ENGLISH SHOWCASE M ENGLISH HOPS.

ENGLISH HAS MORE MALT CHARACTER Page 6 of 10

④ ACETALDEHYDE - CHEMICALLY GREEN APPLE FLAVOR AND AROMA.

NATURALLY PRODUCED BY YEAST DURING ETHANOL CREATION DURING FERMENTATION BUT, SIMILAR TO DIACETYL, ~~YEAST~~ HEALTHY YEAST WILL TAKE IT BACK UP AFTER FERMENTATION BEGINS TO SLOW. ~~SOME~~ SOME YEAST STRAINS (LAGER) ARE MORE PRONE TO GENERATING ACETALDEHYDE THAN OTHERS. CONTROLLED BY MAKING SURE BEER STAYS ON YEAST TILL IT IS CLEANED UP. SOME ^{NEW} FLOCCULANT YEASTS MAY NEED TO BE STIRRED BACK INTO SUSPENSION.

NOT REQUIRED BY ANY STYLE. OK IN AMERICAN LIGHT LAGERS BUT EVEN THEN IN LOW AMOUNTS. GENERALLY CONSIDERED A FLAW.

CARDBOARD - A PAPERY OR CARDBOARD FLAVOR OR AROMA.

CAUSED THROUGH OXIDATION OF ALCOHOLS AND FATTY ACIDS IN BEER. CONTROLLED BY ~~NOT~~ LIMITING EXPOSURE TO OXYGEN COLD SIDE (COOLING → FERMENTING → PACKAGING) BUT ALSO LOWER ALCOHOL BEERS ARE LESS PRONE TO OXYDATION. EVEN W/ LOW OXYGEN EXPOSURE BEER WILL OXYDIZE OVER TIME SO ALSO BETTER TO CONSUME FRESH.

ONLY APPROPRIATE FOR HIGH ALCOHOL, LONG AGED BEERS SUCH AS OLD ALE AND BARLEYWINES

FRUITINESS - PERCEIVED AS A WIDE ARRAY OF FRUIT FLAVORS AND AROMAS FROM BERRY TO STONE FRUIT TO DARK FRUIT. PEAR, APPLE, STRAWBERRY, BANANA, APRICOT, PLUM, CHERRY, AMONG OTHERS.

CAUSED BY MULTIPLE FACTORS BUT MOST COMMONLY YEAST, HOPS AND FRUIT ADDITIONS.

W/ YEAST DIFFERENT STRAINS ARE PROVE TO GENERATING DIFFERENT TYPES OF ESTERS AT DIFFERENT TEMPS. TYPICALLY HIGHER TEMP MEANS MORE ESTERS. ENGLISH STRAINS ARE MORE APPLE/PEAR OR BERRY. GERMAN HEFE STRAINS MORE BANANA. BELGIAN STRAINS MIX SOME FRUIT AS WELL AS APPLE/PEAR AND BERRY.

MANY NEWER AMERICAN, NEW ZEALAND AND AUSTRALIAN HOPS ARE VERY FRUITY W/ CITRUS, TROPICAL FRUIT, STONE FRUIT ALL BEING COMMON.

LASTLY, SOME STYLES OF BEER CALL FOR ACTUAL FRUIT ADDITIONS IN THE BOIL OR FERMENTER OR POST FERMENTATION. THE LATER IT IS ADDED IN THE PROCESS, MORE FRUIT CHARACTER IS RETAINED.

NOT APPROPRIATE FOR LAGERS EXCEPT SOME PILSNER (MUNICH II FOR EXAMPLE ~~OR SO~~) CAN IMPART A CHERRY LIKE FLAVOR.

MOST AMERICAN BEES CALL FOR CLEAN FERMENT W/ LOW ESTERS

MORE NOTICEABLE ESTERS ARE CALLED FOR W/ BELGIAN, GERMAN WHEAT BEERS AND FRUIT BEERS.

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ADDING GYPSUM

Gypsum ($CaSO_4$) is a brewing added to adjust calcium and sulfate levels. Added during the mash or boil. During mash it will react (ca) w/ phytates in the malt to lower the pH of the mash and remove temporary hardness, thereby reducing residual alkalinity. ~~water~~ depending on the water profile and grain bill this can help get the mash into the desired pH of 5.2-5.8 (preferable ~5.4). Also it boosts the calcium level. For healthy ferment yeast needs 720ppm of calcium and 75ppm is desired for good hot/cold break and clarity. Sulfate is also increased which will "brutalize" the water giving it a more crisp/dry (>200ppm) character that helps the hops "pop". Too much sulfate (>400ppm) will make the beer overly harsh.

FINING

Finning is adding fine materials to the boil or post boil to help drop out polyphenols and proteins that can inhibit clarity. They do this w/ opposite electrical charges. In boil finings are whirlfloc or Spanish moss or carrageen. These help pull together proteins into large egg drop soup looking flocs that drop out and can be racked off of. Post boil finings are isinglass, polyclar/PVIP, silica gel and gelatin. They work similarly by glomming together

OPPOSITES CHARGED YEAST, POLYPHENOLIC,
PROTEINS ~~AND FATS~~.

THE END RESULT IS CLEARER BEER

ISINGLASS IS MADE FROM FISH BLADDER (MAINLY
COD NOW). POLYLAM / PVPP IS CHARGED PLASTIC
AND MUST BE FILTERED OUT. GELATIN IS NON-VEGAN
MADE FROM CALVEIN.

KRAUSING

ADDING HIGH FERMENT / ACTIVELY
FERMENTING WORT TO FINISHED BEER
TO CLEAN-UP DIACETYL AND ACETYLALDEHYDE
AND TO CARBONATE, USED BY SOME TO
ADHERE TO THE REINHILBERTOT SINCE
NO SUGAR OR PCO_2 IS REQUIRED.

SOME BREWERS SAVE WORT AND MAKE
A STARTER W/ IT AS 10-20% OF
FINAL VOLUME. OTHER BREWERIES
RACK FOR AN ACTIVE BEER TO A
FINISHED BEER.

ISSUES CAN BE INFECTION OR VARIABLE
CARBONATION DUE TO MORE DIFFICULT
CALCULATIONS.