



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF THE

DEGREE OF BACHELOR OF SCIENCE IN APPLIED COMPUTER SCIENCE

FIRST SEMESTER, 2023/2024

(AUGUST-DECEMBER, 2023)

ACMP 342: WEB PROGRAMMING II

STREAM: Y3 S1

TIME: 2 HOURS

DAY: TUESDAY, 12:00–02:00 PM

DATE: 28/11/2023

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer Question ONE [Compulsory] and any other TWO Questions.***

Question 1.

- Discuss the difference between `@Controller` and `@RestController` [6]
- Describe the functions of a controller [6]
- Explain in detail what Spring Boot is [6]
- Explain in detail what `@PostMapping` annotation is for. [6]
- Describe a static resource in spring as discussed? [6]

Question 2.

- Describe two different ways how to add a dependency to a spring boot project [5]
- Explain clearly what purpose do annotations serve in Spring boot. [5]
- Explain the purpose of an Interface [5]
- Discuss the differences between a class and an interface [5]

Question 3.

- a) Explain what JPA in spring boot in less than 50 words [5]
- b) What is a Bean as discussed in class? [5]
- a) In spring boot the JPA creates the database tables based on the classes. Declare a class with a column name hallcount of type int and does not allow null values [10]

Consider Code Listing 1 below and answer questions 4 & 5

```
1. package com.acmp.controller;
2.
3. import java.util.List;
4.
5. import org.springframework.beans.factory.annotation.Autowired;
6. import org.springframework.data.domain.Page;
7. import org.springframework.stereotype.Controller;
8. import org.springframework.ui.Model;
9. import org.springframework.web.bind.annotation.GetMapping;
10. import org.springframework.web.bind.annotation.ModelAttribute;
11. import org.springframework.web.bind.annotation.PathVariable;
12. import org.springframework.web.bind.annotation.PostMapping;
13. import org.springframework.web.bind.annotation.RequestMapping;
14. import org.springframework.web.bind.annotation.RequestParam;
15.
16. import com.acmp.entity.Baxy;
17. import com.acmp.service.BaxyService;
18.
19. @Controller
20. @RequestMapping("/baxyoint")
21. public class BaxyController {
22.
23.     @Autowired
24.     private BaxyService baxyService;
25.
26.     @GetMapping("/")
27.     public String viewHomePage(Model model) {
28.         return findPaginated(1, "name", "dsc", model);
29.     }
30.
31.     @GetMapping("/addbaxy")
32.     public String showNewBaxy3(Model model) {
33.         Baxy baxy = new Baxy();
34.         model.addAttribute("baxy", baxy);
35.         return "baxy/newbaxy";
36.     }
37.
38.     @PostMapping("/savebaxy")
39.     public String showNewBaxy4(@ModelAttribute("baxy") Baxy baxy) {
40.         baxyService.saveBaxy(baxy);
```

```

41.         return "redirect:/issueprio/";
42.     }
43.
44.     @GetMapping("/page/{pageNo}")
45.     public String findPaginated(Model mode, int pageNo,
46.         @PathVariable (value = "pageNo") @RequestParam("sortDir") String sortDir,
47.         @RequestParam("sortField") String sortField) {
48.
49.         int pageSize = 5;
50.
51.         Page<Baxy> page = baxyService.findPaginated(pageNo, pageSize, sortField, sortDir);
52.         List<Baxy> listBaxys = page.getContent();
53.
54.         model.addAttribute("currentPage", pageNo);
55.         model.addAttribute("totalPages" , page.getTotalPages());
56.         model.addAttribute("totalItems" , page.getTotalElements());
57.
58.         model.addAttribute("sortField", sortField);
59.         model.addAttribute("sortDir", sortDir);
60.         model.addAttribute("reverseSortDir", sortDir.equals("asc") ? "desc" : "asc");
61.
62.         model.addAttribute("listBaxys", listBaxys);
63.         return "baxy/baxylist";
64.     }
65.
66.     @GetMapping("/UpdateBaxy/{id}")
67.     public String showBaxyUpdate(@PathVariable ( value = "id") long id, Model model) {
68.         Baxy baxy = baxyService.getBaxyById(id);
69.         model.addAttribute("baxy", baxy);
70.         return "baxy/updatebaxy";
71.     }
72.
73.     @GetMapping("/rusiebaxy/{id}")
74.     public String deleteBaxy(@PathVariable (value = "id") long id) {
75.         this.baxyService.deleteBaxyById(id);
76.         return "redirect:/baxyoint/baxy/baxylist";
77.     }
78.
79. }

```

Code Listing 1

Question 4.

- a) Explain the instruction at line 19 [5]
- b) Explain the instruction at line 23 [5]
- c) Explain the instructions from lines 31 to 36 do [5]
- d) Explain the instruction at line 40 [5]

Question 5.

- a) Explain the instruction at line 52 [5]
- b) Explain the instructions at line 54 [5]
- c) What does the instruction at line 67 do? [5]
- d) What does the instruction at line 73 do? [5]