重庆科技学院

《高级路由与交换》非标准答案考试试题

（含答题页）

题 目： 网络工程规划设计

学生姓名： 田 波 学 号：2022330832

学 院：智能技术与工程学院 专业班级：计科（3+2）-02

完成日期： 2022年 12月 30日

成绩（百分制）：

授课教师： 田袁

重庆科技学院非标准答案试题答题页

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **（1）拓扑图**    表1 网络连接规划表   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | 设备名称 | 设备接口 | | 目标设备名称 | | 设备接口 | | | R1 | G0/1 | | PC1 | | G0/1 | | | G0/2 | | PC3 | | G0/1 | | | S1/0 | | R2 | | S1/0 | | | S2/0 | | R3 | | S2/0 | | | R2 | G/0 | | R5 | | G0/0 | | | G/1 | | R4 | | G0/0 | | | G0/2 | | PC4 | | G0/1 | | | S1/0 | | R1 | | S1/0 | | | R3 | | G0/0 | | PC2 | | G0/1 | | | G0/1 | | R4 | | G0/1 | | | S2/0 | | R1 | | S2/0 | | | R4 | | G0/0 | | R2 | | G0/1 | | | G0/1 | | R3 | | G0/1 | | | G5/0 | | R5 | | G5/0 | | | R5 | | G0/0 | | R2 | | G0/0 | | | G0/1 | | R6 | | G0/0 | | | G5/0 | | R4 | | G5/0 | | | R6 | | G0/0 | | R5 | | G0/1 | | | G0/1 | | PC5 | | G0/1 | | | G0/2 | | PC6 | | G0/1 | | | PC1 | | G0/1 | | R1 | | G0/1 | | | PC2 | | G0/1 | | R3 | | G0/0 | | | PC3 | | G0/1 | | R1 | | G0/2 | | | PC4 | | G0/1 | | R2 | | G0/2 | | | PC5 | | G0/1 | | R6 | | G0/1 | | | PC6 | | G0/1 | | R6 | | G0/2 | |   表 2 网络设备明细表   |  |  |  |  | | --- | --- | --- | --- | | 名称和型号 | 版本 | 数量 | 描述 | | MSR36-20 |  | 6 | 路由器 | | PC |  | 6 | 主机 |   **（2）IP 地址规划**  表3 IP地址规划表   |  |  |  |  | | --- | --- | --- | --- | | 设备名称 | 接口 | IP 地址/掩码 | 网关 | | PC1 | G0/1 | 172.16.32.82/28 | 172.16.32.81/28 | | PC2 | G0/1 | 172.16.32.130/28 | 172.16.32.129/28 | | PC3 | G0/1 | 172.16.32.98/28 | 172.16.32.97/28 | | PC4 | G0/1 | 172.16.32.2/28 | 172.16.32.1/28 | | PC5 | G0/1 | 15.32.32.66/28 | 15.32.32.65/28 | | PC6 | G0/1 | 15.32.32.82/28 | 15.32.32.81/28 | | R1 | G0/1 | 172.16.32.81/28 |  | | G0/2 | 172.16.32.97/28 |  | | S1/0 | 172.16.32.18/28 |  | | S2/0 | 172.16.32.33/28 |  | | Loop0 | 36.36.36.36/32 |  | | R2 | G0/0 | 15.32.32.17/28 |  | | G0/1 | 172.16.32.65/28 |  | | G0/2 | 172.16.32.1/28 |  | | S1/0 | 172.16.32.17/28 |  | | Loop0 | 32.32.32.32/32 |  | | R3 | G0/0 | 172.16.32.129/28 |  | | G0/1 | 172.16.32.49/28 |  | | S2/0 | 172.16.32.34/28 |  | | R4 | G0/0 | 172.16.32.66/28 |  | | G0/1 | 172.16.32.50/28 |  | | G5/0 | 15.32.32.1/28 |  | | Loop0 | 33.33.33.33/32 |  | | R5 | G0/0 | 15.32.32.18/28 |  | | G0/1 | 15.32.32.33/28 |  | | G5/0 | 15.32.32.2/28 |  | | Loop0 | 34.34.34.34/32 |  | | R6 | G0/0 | 15.32.32.34/28 |  | | G0/1 | 15.32.32.65/28 |  | | G0/2 | 15.32.32.81/28 |  | | Loop0 | 35.35.35.35/32 |  |   **（2）OSPF**  1) R1，R2，R3，R4 上 OSPF 协议的相关配置命令          4)：  2) R1 和 R3 上查看 OSPF 邻居表， R1 在区域 0 中和R3建立了邻居关系，在区域 2 中和R2建立了邻居关系。      3)R4 在区域 1 中和R2、R3建立了邻居关系。    5）显示 R4 上的路由表，说明 R4 学到了 172.16.32.0/28 、 172.16.32.16/28 、172.16.32.32/28 、 172.16.32.80/28 、 172.16.32.96/28 、 172.16.32.128/28    **（3）BGP**  1）利用 display current-configuration 命令，显示在 R2、R4、R5、 R6 上 BGP 协议的相关配置命令，并且分别截图展示。  R2:        R4:        R5:      R6:      2）在 R5 上显示共有15.32.32.1(R4) 、 15.32.32.17(R2) 、 15.32.32.34(R6),状态均为 Established    3）显示 R2 上的路由表，说明 R2学到了一条 BGP 路由：35.35.35.35/32 ， 学到了六条 OSPF 路由：33.33.33.33/32 、 172.16.32.32/28 、 172.16.32.48/28 、172.16.32.80/28 、 172.16.32.96/28 、172.16.32.128/28    4）显示 R6 的路由表， R6 共学到了两条 BGP 路由：32.32.32.32/32 和 33.33.33.33/32    **（4）路由引入**  1）显示在 R2 路由引入。      2）在 R6 上引入直连路由到 BGP，显示 R6 路由引入。    3）在 R4 上引入直连路由到 OSPF，显示 R4 路由引入。    4）显示 R6 的路由表，说明 R6 新增加了 172.16.32.0/28 、~16/28、 ~18/28、~32/28 、~48/28 、 ~64/28、~80/28、~96/28、172.16.32.128/28 九条 BGP 路由    **（5）路由选择**  1）          2）        3）      **（6）NAT配置**  1）    2）在路由器 R5 上用 display ip routing-table 展示效果并截图，可发现 PC4 所在的网段不 在路由 R5 表中：    3）          4)      **（7）路由过滤**  1）      2）在路由器 R5 上用 display ip routing-table 展示效果并截图，可发现 PC3 所在的网段不在路由 R5 表中：  **（8）路由聚合**  1）      2）    3）  在 BGP 视图下面，在路由器 R2 和 R5 上配置 BGP 建立 TCP 连接时进行 MD5 认证，给出配置 命令，并截图展示： |

备注：成绩评定需提交答题页及模拟器生成的项目文件，一并提交存档。