MCQ Questions - HPCToolkit

1. Which command is used to collect performance data in HPCToolkit?
a) hpcstruct
b) hpcprof
c) hpcrun
d) hpcviewer

2. What does HPCToolkit use to gather performance data?
a) Instrumentation-based profiling
b) Sampling-based profiling
c) Static analysis
d) Dynamic instrumentation

3. Which option in hpcrun specifies the output directory for storing performance data?
a) -e
b) -t
c) -o
d) -u

4. What type of profiling does hpcrun perform?
a) Call Path Profiling
b) Function Instrumentation
c) Event-based Sampling
d) System Call Tracing

5. Which command is used to analyze the application binary and construct a program structure in HPCToolkit?
a) hpcprof
b) hpcviewer
c) hpcrun
d) hpcstruct

6. How can you enable tracing of function call entry and exit in hpcrun?
a) -e
b) -t
c) -o
d) -u

7. What is the purpose of the hpcprof command in HPCToolkit?
a) To visualize performance metrics

b) To collect performance data
c) To analyze application binaries
d) To correlate performance data with program structure

8. Which command provides a graphical user interface for exploring performance data in HPCToolkit?
a) hpcviewer
b) hpcrun
c) hpcprof
d) hpcstruct

9. What does the -e option in hpcrun specify?
a) The output directory
b) The sampling interval
c) The hardware event to sample
d) The tracing of function calls

10. How do you list the available events that hpcrun can sample?
a) hpcrun -e
b) hpcrun -t
c) hpcrun -L
d) hpcrun -h

11. What type of information does hpcstruct recover about a program?
a) Performance metrics
b) Program structure
c) I/O operations
d) Memory usage

12. Which option in hpcrun sets the sampling interval?
a) -e
b) -t
c) -o
d) -u

13. Which HPCToolkit command is used to visualize performance metrics?
a) hpcrun
b) hpcstruct
c) hpcprof
d) hpcviewer

14. What type of performance data can HPCToolkit collect?

a) CPU utilization
b) Memory usage
c) I/O operations
d) All of the above

14. What file does hpcprof produce for visualization?
a) Measurement directory
b) Struct file
c) Database of performance metrics
d) Source code annotations

15. How is the program structure information stored after running hpcstruct?
a) As a measurement directory
b) In a database
c) As a struct file
d) In a log file

16. What does the -t option enable in hpcrun?
a) Tracing of function call entry and exit
b) Event-based sampling
c) Specifying the output directory
d) Setting the sampling interval

17. Which command correlates performance data with the program structure?
a) hpcrun
b) hpcstruct
c) hpcprof
d) hpcviewer

18. What is the primary use of hpcstruct in HPCToolkit?
a) To collect performance data
b) To construct a program structure
c) To correlate performance data
d) To visualize performance metrics

19. What command would you use to install HPCToolkit using Spack?
a) spack setup hpctoolkit
b) spack load hpctoolkit
c) spack install hpctoolkit
d) spack find hpctoolkit

20. What is the purpose of the setup-env.sh file in Spack?

a) To install HPCToolkit
b) To configure the environment for Spack
c) To list available packages
d) To find installed packages

21. Which HPCToolkit command generates a measurement directory?
a) hpcrun
b) hpcstruct
c) hpcprof
d) hpcviewer

22. How do you load HPCToolkit after installation using Spack?
a) spack load hpctoolkit
b) spack install hpctoolkit
c) spack setup hpctoolkit
d) spack find hpctoolkit

23. What information does hpcprof use to produce a database of performance metrics?
a) Source code annotations
b) Measurement data and program structure
c) Runtime logs
d) System call traces

24. What type of analysis is HPCToolkit particularly designed for?
a) Single-threaded applications
b) Web applications
c) High Performance Computing (HPC) applications
d) Mobile applications
Answer: c) High Performance Computing (HPC) applications