

U.G. 6th Semester Examination 2022

PHYSICS (Honours)

Paper Code : SEC 2 - A & B

Full Marks : 40

Time : Two Hours

SEC 2 - A

(Renewable Energy)

Answer *all* questions.

2×20=40

Choose the correct option.

1. What should be the band gap of the semiconductors to be used as solar cell materials ?
 - (a) 0.5 eV
 - (b) 1.0 eV
 - (c) 1.5 eV
 - (d) 1.9 eV

2. Burning of fossil fuels produces —
 - (a) O_2
 - (b) CO_2
 - (c) N_2
 - (d) H_2O

3. Which of the following is a conventional way of generating electrical energy ?
 - (a) Tidal power
 - (b) Wind power
 - (c) Solar power
 - (d) Thermal power

[P.T.O.]

4. In which of the following conditions bio-gas is produced ?
- (a) Presence of oxygen
 - (b) Action of aerobic microorganisms
 - (c) Action of anaerobic microorganisms
 - (d) Presence of fertilizers
5. In photovoltaic cell solar energy is transformed into —
- (a) Thermal energy
 - (b) Electric energy
 - (c) Mechanical energy
 - (d) Kinetic energy
6. Tidal energy utilizes —
- (a) Kinetic energy of water
 - (b) Potential energy of water
 - (c) Both (a) and (b)
 - (d) None of these
7. In which country has worlds largest tidal power plant ?
- (a) South Korea
 - (b) USA
 - (c) India
 - (d) Netherland
8. Full form of OTEC is —
- (a) Ocean thermal energy consumption
 - (b) Ocean techno energy conservation
 - (c) Ocean thermal energy conservation
 - (d) Ocean thermal energy cultivation.

9. What is tidal mill ?
- (a) A dam to store the tide
 - (b) A barrage
 - (c) A sluice gate
 - (d) A mill driven by tidal rise and fall
10. How are waves in the ocean formed ?
- (a) due to gravity
 - (b) due to wind moving across the surface
 - (c) due to spin of the earth
 - (d) due to movement of ocean lifes
11. Kinetic energy that results from the oscillation of water is called —
- (a) Tidal energy
 - (b) Wave energy
 - (c) Ocean thermal energy
 - (d) Hydro energy
12. Principle behind the generation of hydroelectric power —
- (a) conversion of electric energy into gravitational energy
 - (b) conversion of gravitational potential energy into thermal energy
 - (c) conversion of electric energy into kinetic energy
 - (d) conversion of gravitational potential energy into electrical energy
13. Rammam hydroelectric power project is located in —
- (a) Purulia
 - (b) Darjeeling
 - (c) Bankura
 - (d) Durgapur

14. Most efficient power plant is —
- (a) Coal-based steam power plant
 - (b) Nuclear power plant
 - (c) Hydro electric power plant
 - (d) Diesel engine power plant
15. In Piezoelectric effect a material produces electric field when —
- (a) Voltage is applied
 - (b) Electric field is applied
 - (c) Mechanical stress is applied
 - (d) Magnetic field is applied
16. Total primary energy consumption of fuel in the world is led by —
- (a) Coal
 - (b) Nuclear
 - (c) Hydro
 - (d) Oil
17. What is biomass energy ?
- (a) Energy generated from ocean wave
 - (b) Energy generated from wind
 - (c) Energy generated from plant and animal
 - (d) Energy generated from river
18. To make transport fuel, the bio-ethanol is blended with —
- (a) Petrol
 - (b) Diesel
 - (c) Kerosene
 - (d) Fenile

19. Which of the following is responsible for thermal energy ?
- (a) UV
 - (b) Infrared
 - (c) Gamma
 - (d) X-ray
20. How does the inclination of earth's axis affect the incoming solar radiation ?
- (a) All the solar radiation is concentrated around the equator
 - (b) The radiation is distributed along the entire equator
 - (c) All radiation is concentrated at poles
 - (d) Solar radiation is non-uniformly distributed through-out the earth's surface
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SEC 2 - B**(Basics of Programming and Scientific Word Processing)**

Answer *all* questions.

2×20=40

Choose the correct option.

1. What is the main function of the command interpreter ?
 - (a) to provide the interface between the API and application program
 - (b) to handle the files in the operating system
 - (c) to get and execute the next user-specified command
 - (d) none of the mentioned
2. A CPU contains —
 - (a) a card reader and a printing device
 - (b) an analytical engine and a control unit
 - (c) a control unit and an arithmetic logic unit
 - (d) an arithmetic logic unit and a card reader
3. Which of the following is not a valid C variable name ?
 - (a) int number;
 - (b) float rate;
 - (c) int variable_count;
 - (d) int \$main;
4. Which of the following declaration is not supported by C language ?
 - (a) String str;
 - (b) char*str;
 - (c) float str = 3e2;
 - (d) Both String str; & float str = 3e2;

[P.T.O.]

5. What will be the output of the following C code ?

1. #include <stdio.h>
2. int main()
3. {
4. signed char chr;
5. chr=128;
6. printf("%d\n", chr);
7. return 0;
8. }

- (a) 128
- (b) - 128
- (c) Depends on the compiler
- (d) None of the mentioned

6. What will be the final value of x in the following C code ?

1. #include <stdio.h>
2. void main()
3. {
4. int x = 5*9/3+9;
5. }

- (a) 3.75
- (b) Depends on compiler
- (c) 24
- (d) 3

7. The first widely-used high level language developed in 1957.

- (a) C
- (b) Java
- (c) Fortran
- (d) Cobol

8. The delimiter in a FORTRAN code is —
- (a) semicolon
 - (b) blank space
 - (c) colon
 - (d) comma
9. Which is invalid statement in FORTRAN ?
- (a) $P+Q+$
 - (b) Continue
 - (c) do $i=1,100$
 - (d) real $x(100,100)$
10. First statement in FORTRAN code is —
- (a) include statement
 - (b) input statement
 - (c) program statement
 - (d) data statement
11. Which command is used to specify the author(s) of the document in LATEX ?
- (a) `\title`
 - (b) `\author`
 - (c) `\date`
 - (d) `\document`
12. Syntax for latex colour —
- (a) `\begin{color} {text}`
 - (b) `setcolor{text}`
 - (c) `\textcolor{red} {text}`
 - (d) `\color{text}`

13. Correct syntax for inline formula in LATEX —
- (a) $f(x)=x^2$
 - (b) $\{f(x)=x^2\}$
 - (c) * $f(x)=x^2$ *
 - (d) $(f(x)=x^2)$
14. Which is the correct syntax for LaTeX table —
- (a) `\begin{tables}`
 - (b) `\start{tabular}`
 - (c) `\open{table}`
 - (d) `\begin{tabular}`
15. A machine language instruction format consists of —
- (a) Operand field
 - (b) Operation code field
 - (c) Operation code field & operand field
 - (d) None of the mentioned
16. The smallest font size in LATEX is —
- (a) `\large`
 - (b) `\small`
 - (c) `\scriptsize`
 - (d) `\tiny`
17. What is a compiler ?
- (a) system program that converts instructions to machine language
 - (b) system program that converts machine language to high-level language
 - (c) system program that writes instructions to perform
 - (d) none of the mentioned

18. Which of the following error can a compiler check ?
- (a) Syntax Error
 - (b) Logical Error
 - (c) Both Logical and Syntax Error
 - (d) Compiler cannot check errors
19. The command used for creating new command in LATEX —
- (a) `\newcommand`
 - (b) `\begin{command}`
 - (c) `\commandnew`
 - (d) all of the above
20. LATEX was developed by —
- (a) Dennis Ritchie
 - (b) Ken Thompson
 - (c) Donald Knuth
 - (d) Mark Zuckerberg
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